Reference Manual

RAS 2009

Reversing & Audible Safety

Mission Statement

To become the preferred supplier of electrical, lighting and safety solutions for mobile plant and equipment in the mining and services industry.

We will strive to improve and expand our range of products that meet and exceed OEM standards, maintaining the latest technology and innovation available backed by technical support and supply.

BRIGADE®

FLIR

Contents

Reversing Alarms
Broadband Overview 4
Self-Adjusting Broadband Sound Alarms 5
Broadband Sound Alarms 6
Digital Self-Adjusting Alarms 8
Manual-Adjusting Alarms 10
Fixed Volume Alarms 12
Economy Alarms 14
Dual Function & Dual Tone Alarms 15

Horns
Constant Tone Speaker 16
Disc & Scroll Type 17

Warning Buzzers 18

Activating Switches 19

Sirens
Siren Amplifiers 20
Siren Speakers 22

Backchat Intercom System 23

Reversing Sensors
Ultrasonic Sensors - Pro 24
Ultrasonic Sensors - Pro +50 26
Ultrasonic Sensors - Standard 28
Pulsed Radar Reversing Sensor 30

CCTV Systems
CCTV Overview 32
Backeye Monitors 34
Backeye Cameras 36
Backeye Weatherproof Kit 40
Value Monitors 42
Value Cameras 44
Base Model Kit 46
FLIR Thermal Imaging Camera 48
Pulse - Power Line Communicator 49
Digital Video Recorder 50
DVR Connection Diagram 52

Index 53

State of the Art Design & Technology

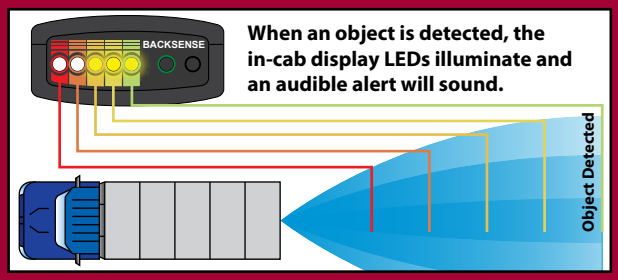
SELF CLEANING PORT

Backup alarms can be used in hostile environments and suffer from debris, water and dust ingress.
Brigade heavy-duty alarm designs use a double reflex horn and patented self-cleansing Pressure Port System™.
This system uses pressure from the Dome Speaker to pump mud, dust and water out of the sound chamber. The result is increased reliability in hostile environments.

ULTRASONIC OBJECT DETECTION

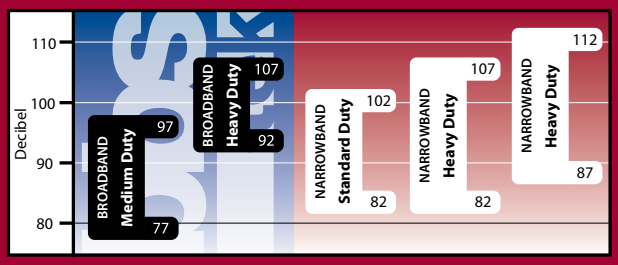
Ultrasonic sensors generate pulsed high frequency sound waves. If there is an object in the path of these pulses, they will be reflected back to the sensor as an echo.
By measuring the time difference between the pulse being transmitted and the echo being received, it is possible to determine how far away the object is from the sensor.

PULSED RADAR


BACKSENSE
When an object is detected, the in-cab display LEDs illuminate and an audible alert will sound.
Object Detected

The Pulsed Radar system helps save lives and prevent damage to vehicles caused by reversing into objects. The system is designed to detect the closest obstacle (whether stationary or moving, human or inanimate) in the zone of coverage.

DIGITAL SELF-ADJUSTING



Take the guesswork out of sound pressure level (SPL) selection. Ideal for vehicles or machines working in areas with widely differing ambient noise levels, where a fixed-volume reversing alarm will be either too quiet in loud environments (very hazardous), or too noisy in quiet environments (irritating and a nuisance).

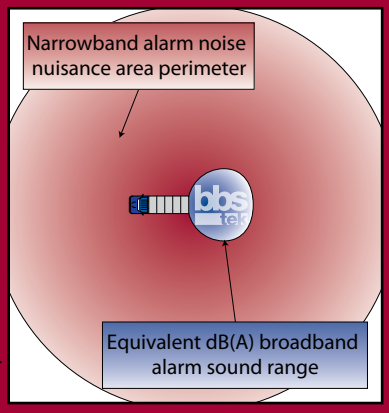
CCTV SYSTEMS

Total Source offers a comprehensive range of Brigade CCTV camera systems including FLIR's state of the art infrared early hazard recognition systems.
Brigade cameras and monitors come in 2 ranges; Backeye and Value, offering quality and value ideal for heavy duty, light duty, commercial and emergency service vehicles.

When it comes to seeing in adverse conditions FLIR's PathFindIR compact thermal imaging camera is the perfect choice.
The PathFindIR offers rugged, high performance thermal imaging capable of detecting heat sources through smoke, rain, fog, and complete darkness.

BROADBAND SOUND TECHNOLOGY

Locatable Sound.
To locate a sound source, three parts of the frequency spectrum must be heard simultaneously, as a single sound: low frequencies, mid frequencies, higher frequencies.
With at least a portion of each of these frequency ranges the brain can locate the direction of a sound source. With a large range sampled from each frequency, as with broadband sounds, the brain's chances of accurately locating a sound's source increases exponentially.
With broadband sound alarms the accuracy for instant locatability can be made to within **5 degrees** of the sound source.



Sound localised within hazard area.
bbs-tek alarms are equally effective at 5dbA lower sound pressure levels than conventional narrowband alarms. Therefore the lower dbA along with the broadband sound characteristic of dissipating at twice the rate of narrowband sound, means the sound will not travel excessive distances.
While there is negligible sound dissipation in the danger area, there is approximately 10dbA loss away from the danger area at 90 deg to the side of the vehicle.
All of these factors allow bbs-tek alarms to keep their sound only where you need it; in the hazard zone.

Broadband Overview

The bbs-tek BACKALARM uses multi-frequency broadband sound instead of the traditional single frequency sound of a conventional alarm. The sound dissipates much quicker, is directional, and is localised in the danger zone, resulting in an enormous reduction in noise nuisance and complaints.

Not only are nuisance and complaints considerably reduced, but the unique localisation feature of the bbs-tek BACKALARM means that in busy environments you can tell instantly where the sound is coming from and, therefore, which vehicle is reversing.

This makes the bbs-tek BACKALARM much safer when used in areas that have several vehicles moving.

shh...shh

(not bleep...bleep)

Eliminates noise nuisance & complaints

Broadband sound is easier on the ear and dissipates at twice the rate of conventional alarms, creating a better work site and less environmental disturbance.

Locatable

With bbs-tek reversing alarms it is much easier to tell which vehicle is reversing toward you within a noisy environment.

Directional

The sound is concentrated within the danger zone, increasing people's response to the alarm and diminishing the chance of it being ignored.

Lifetime Warranty

Brigade bbs-tek reversing alarms are so robust they have a 'no quibble', 'fuss-free' lifetime warranty that covers the alarm for the life of the vehicle.

Self-Adjusting Broadband

Digital self-adjusting bbs-tek alarms are one of the most technologically advanced reversing alarms in the world to date.

Combining the unique bbs-tek sound with an advanced self-adjusting system that sets the alarm's output 5dbA above the current ambient noise level, means these reversing alarms are suitable for almost every application.

Part No. BBS107SA

NEW in RAS2009

Part No. BBS97SA

Digital self-adjusting sound level

Locatable sound

Directional sound concentrated in danger zone

Eliminates noise nuisance complaints

Epoxy sealed IP68 dust & waterproof. Can be steam & pressure cleaned

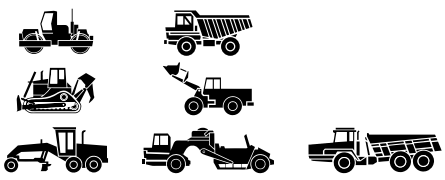
Lifetime warranty - covers the alarm for the life of the vehicle

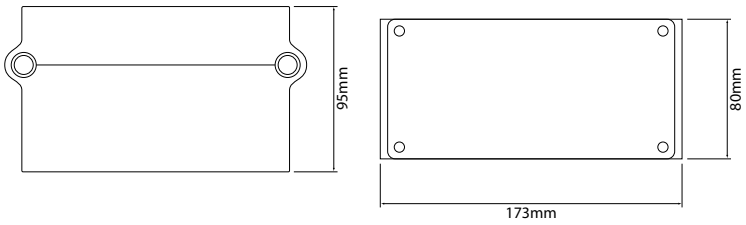
bbs-tek® Specifications

Body :	*BBS97SA*	*AES*
	BBS107SA	*Glass reinforced nylon*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE J994 environmental*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :		*IP68*

bbs-tek® Self-Adjusting Heavy Duty

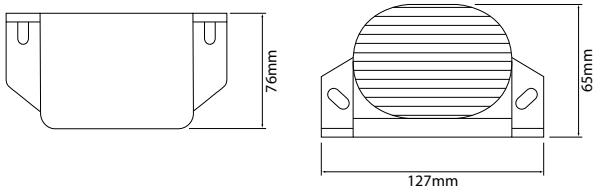
Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
BBS**107**SA	12 - 24	87 - 107	Multi	1.0	Driver	152





bbs-tek® Self-Adjusting Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
BBS**97**SA	12 - 24	77 - 97	Multi	0.5	Speaker	98 - 108



Broadband Alarms

The bbs-tek reversing alarms use multi-frequency broadband sound instead of the traditional single frequency sound of a conventional alarm. The sound dissipates much quicker, is directional, and is localised in the danger zone, resulting in an enormous reduction in noise and nuisance complaints.

Operators involved in all types of vehicle movement from conventional road transport, including trucks, RCV's, buses and low-loaders to off-road applications, including quarry vehicles, forklifts, earth moving equipment and agricultural vehicles, are already experiencing the unique benefits of the bbs-tek reversing alarm system.

Not only are noise nuisance and complaints considerably reduced, but the unique, localisation feature of the bbs-tek reversing alarms mean that in busy environments you can tell instantly where the sound is coming from and, therefore, which vehicle is reversing.

This makes the bbs-tek reversing alarms much safer when used in areas that have several vehicles moving.

Eliminates noise nuisance complaints

Locatable sound

Directional sound concentrated in danger zone

Lifetime warranty - covers the alarm for the life of the vehicle

IP68 dust & waterproof. Can be steam & pressure cleaned

Epoxy sealed for maximum vibration, water, dust resistance

80 & 90 Series

100 Series

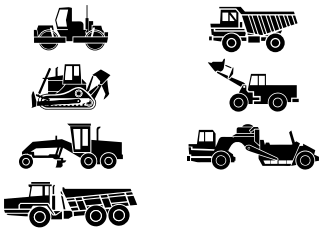
70 & 80 Series

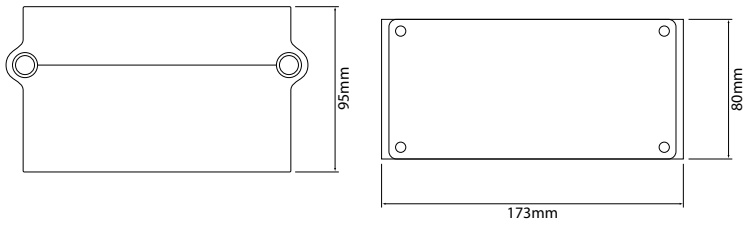
bbs-tek® Specifications

Body :	*70/80/90 Series*	*AES*
	100 Series	*Glass reinforced nylon*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE J994 environmental*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :		*IP68*

bbs-tek® Heavy Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
BBS**102**	12 - 24	102	Multi	1.0	Driver	153
BBS**107**	12 - 24	107	Multi	1.0	Driver	153





bbs-tek® Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
BBS**77**	12 - 24	77	Multi	0.5	Speaker	76	1
BBS**82**	12 - 24	82	Multi	0.5	Speaker	76	2
BBS**87**	12 - 24	87	Multi	0.5	Speaker	76	2
BBS**92**	12 - 24	92	Multi	0.5	Speaker	76	2
BBS**97**	12 - 24	97	Multi	0.5	Speaker	76	2

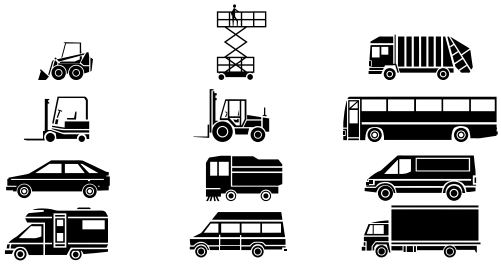


Fig.1

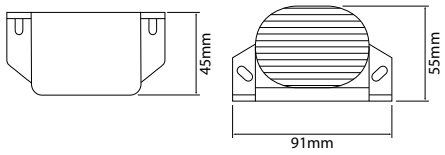
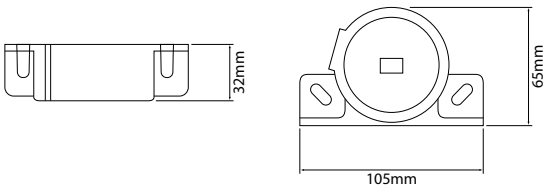
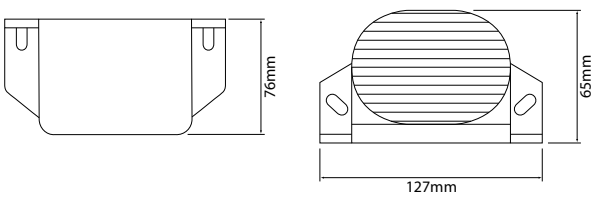


Fig.2



bbs-tek® Medium Duty - High Voltage

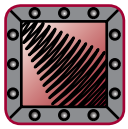
Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
BBS**82**HV	36 - 80	82	Multi	0.15	Speaker	98 - 108
BBS**87**HV	36 - 80	87	Multi	0.15	Speaker	98 - 108



Digital Self-Adjusting Alarms

Self-Adjusting BACKALARMs utilise a small hidden and highly robust microphone by which they measure the ambient sound pressure level (SPL). They then self-adjust their own SPL, up or down, to maintain just 5-10 dB louder. Loud enough to be heard, but not so loud as to cause a nuisance.

The Heavy Duty Smart BACKALARM models use a frequency of 1.9kHz, optimised for construction equipment, as lower frequencies are likely to be masked by construction site noise, typically around 1.0kHz.



Frequency of Heavy Duty model optimised for construction equipment

Patented 'Dome Speaker' technology

Deutsch DT series connector on IDC models

Lifetime warranty - covers the alarm for the life of the vehicle

IP68 dust & waterproof. Can be steam & pressure cleaned

Epoxy sealed for maximum vibration, water, dust resistance

Self cleaning port on heavy duty models

Digital self-adjusting sound level

800 Series

Part No. SA400

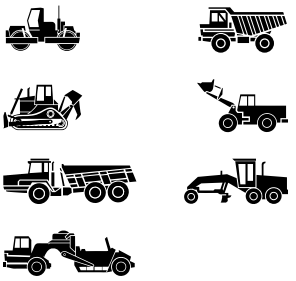
600 Series

Smart Specifications

Body :	*SA400*	*AES*
	600/800 Series	*Glass reinforced nylon*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE J994 environmental*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :		*IP68*

Smart BACKALARM® Heavy Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
SA**600**	12 - 24	82 - 107	1.9	0.3	Dome Speaker	92 - 112	1
SA**600**IDC	12 - 24	82 - 107	1.9	0.3	Dome Speaker	92 - 112	1
SA**800**	12 - 24	87 - 112	1.9	0.3	Dome Speaker	111 - 114	2
SA**800**IDC	12 - 24	87 - 112	1.9	0.3	Dome Speaker	102 - 127	2
SA**801**	12 - 24	87 - 112	1.9	0.3	Dome Speaker	78 - 156	3



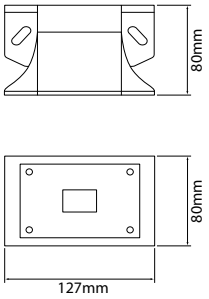


Fig.1

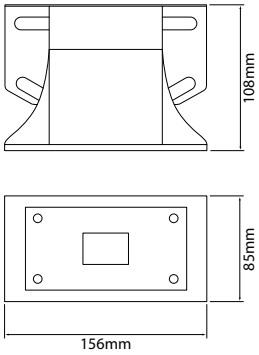


Fig.2

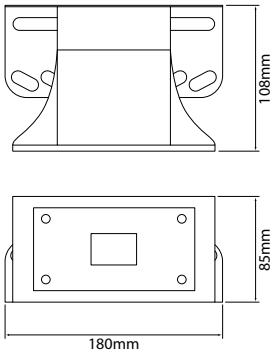
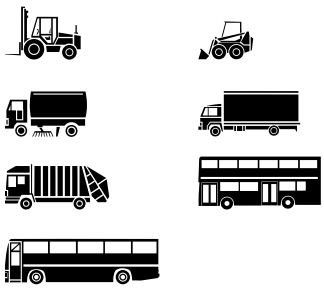


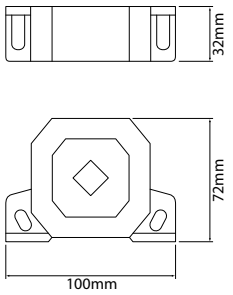
Fig.3

IDC: Including Deutsch Connector

Smart BACKALARM® Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
SA**400**	12 - 24	82 - 102	1.25	0.2	Speaker	76 - 82





Manual-Adjusting Alarm

Reversing in built-up areas at night without disturbing local residents is achievable with NIGHTSHIFT over ride technology.

Simply double-engage reverse gear quickly and the reversing alarm will either reduce in volume, or cut-out completely – depending upon the model selected.

NIGHTSHIFT BACKALARMs reset automatically when the reverse gear is disengaged.

Dual voltage 12V to 24V operation

Double engage reverse gear for sound level switching - auto reset

Tanker spec. model has 400mm lead with armoured conduit

2 year warranty

IP68 dust & waterproof. Can be steam & pressure cleaned

Epoxy sealed for maximum vibration, water, dust resistance

Part No. BA32NS
Part No. BA42NS

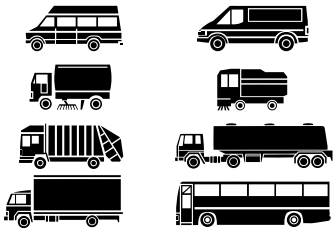
Part No. BA42NSPT

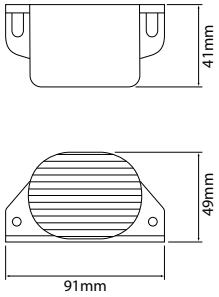
NIGHTSHIFT™ Specifications

Body :	*30/40 Series*	*AES*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE J994 environmental*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :		*IP68*

NIGHTSHIFT™ BACKALARM® Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
BA**32**NS*	12 - 24	90 - 0	1.1	0.2	Speaker	76
BA**42**NS	12 - 24	90 - 78	1.1	0.2	Speaker	76

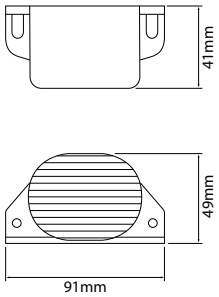




**Check with local regulations for suitability of this alarm in regards to applicable laws/regulations.*

NIGHTSHIFT™ BACKALARM® Medium Duty - Petroleum Tanker Specification

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
BA**42**NSPT	12 - 24	90 - 78	1.1	0.2	Speaker	76 - 82



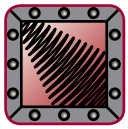
Tanker specification features 400mm of special cable with armoured conduit.

Fixed Volume Alarms

Carefully optimised frequency characteristics make the Brigade BACKALARM range clearly audible under typical working conditions found in heavy duty construction and urban/highway environments.

The Heavy Duty BACKALARM models use a frequency of 1.9kHz, optimised for construction equipment, as lower frequencies are likely to be masked by construction site noise, typically around 1.0kHz.

Heavy duty models available with the optional Deutsch connector.



Frequency of Heavy Duty model optimised for construction equipment

Patented 'Dome Speaker' technology

Deutsch DT series connector on IDC models

Lifetime warranty - covers the alarm for the life of the vehicle

IP68 dust & waterproof. Can be steam & pressure cleaned

Epoxy sealed for maximum vibration, water, dust resistance

Self cleaning port - prevents internal dust build-up

800 Series

Part No. BA13

500 Series

600 Series

Part No. BA13PT-12V

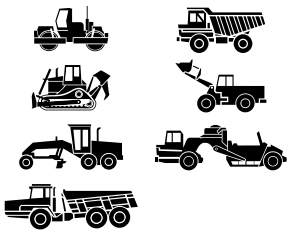
Part No. BA32PT

BACKALARM® Specifications

Body :	*10/30/500 Series*	*AES*
	600/800 Series	*Glass reinforced nylon*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE J994 environmental*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :		*IP68*

BACKALARM® Heavy Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
BA**660**	12 - 24	97	1.9	0.3	Dome Speaker	92 - 112	1
BA**680**	12 - 24	107	1.9	0.3	Dome Speaker	92 - 112	1
BA**680**IDC	12 - 24	107	1.9	0.3	Dome Speaker	92 - 112	1
BA**880**	12 - 24	107	1.9	0.3	Dome Speaker	90 - 132	2
BA**890**	12 - 24	112	1.9	0.5	Dome Speaker	90 - 132	2
BA**890**IDC	12 - 24	112	1.9	0.5	Dome Speaker	90 - 132	2
BA**891**	12 - 24	112	1.9	0.5	Dome Speaker	78 - 157	3
BA**891**IDC	12 - 24	112	1.9	0.5	Dome Speaker	78 - 157	3



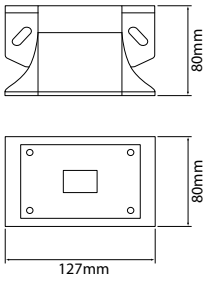


Fig.1

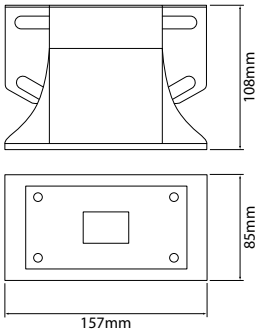


Fig.2

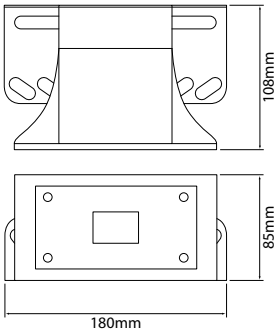
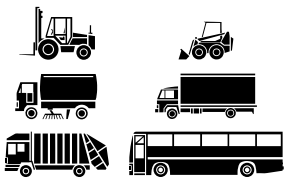


Fig.3

IDC: Including Deutsch Connector

BACKALARM® Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
BA**13**	12 - 24	90	1.3	0.3	Speaker	Single 8mm	1
BA**530**	12 - 24	87	1.25	0.2	Speaker	75 - 85	2
BA**560**	12 - 24	97	1.25	0.2	Speaker	75 - 85	2
BA**570**	12 - 24	102	1.25	0.3	Speaker	75 - 85	2



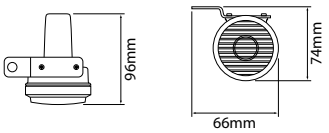


Fig.1

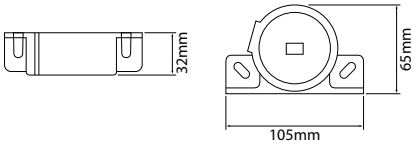


Fig.2

BACKALARM® Medium Duty - Petroleum Tanker Specification

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
BA**13**PT-12V	12	90	0.85	0.2	Speaker	Single 8mm	1
BA**13**PT-24V	24	95	0.85	0.2	Speaker	Single 8mm	1
BA**32**PT*	12 - 24	90	1.1	0.2	Speaker	76	2

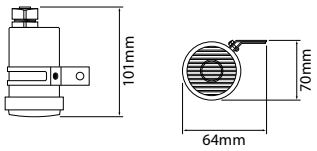


Fig.1

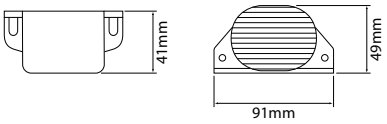


Fig.2

**2 year warranty Tanker specification features 400mm of special cable with armoured conduit.*

Economy Alarms

The economy range is designed for price conscious applications where audible warning is required within a close work environment.

Cost effective and versatile, they meet the basic requirements in the provision of a safer work place.

Stud terminals on 585-1

12v to 80v

585-1 multi-voltage 12V up to 80V operation

585-1 epoxy sealed for maximum vibration, water, dust resistance

2YR WARRANTY

2 year warranty

CE

CE & 'e' marked (EMC)

Part No. BA390

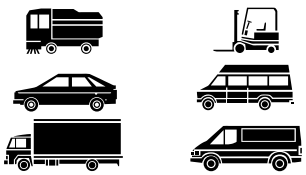
Part No. 585-1

Economy Specifications

Body :	*585-1*	*AES*
	300 Series	*AES*
EMC :		*CE & 'e' marked*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :	*585-1*	*IP67*
	BA390	*IP66*

Economy Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
585-**1**	12 - 80	97	1.3	0.1	Speaker	76 - 82	1
BA**390**	12 - 24	90	3.0	0.05	Piezo Ceramic	Single 8mm	2



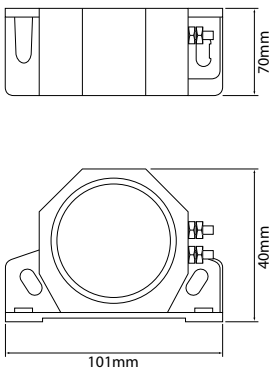


Fig.1

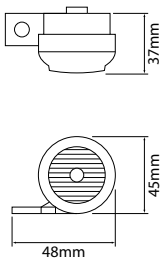


Fig.2

Dual Function & Dual Tone

Dual Function warning alarms provide two types of audible warning in the one unit.

The first is the SAE approved "bleep, bleep, bleep..." warning that a vehicle is reversing/approaching.

The second an alternating "dual tone" sound that can be used to warn of dangers specific to certain machines or equipment (lowering scissor lifts, rotating drive shafts, extending outriggers, etc.)

Dual Tone warning alarms only provide the alternating "dual tone" as described above.

Part No. DT32

400 Series

Dual voltage 12V to 24V operation

Conforms to SAE J994 environmental standards

2 year warranty

CE & 'e' marked (EMC)

IP68 dust & waterproof. Can be steam & pressure cleaned

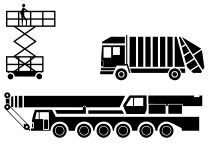
Epoxy sealed for maximum vibration, water, dust resistance

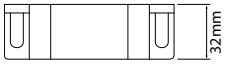
Dual Function/Tone Specifications

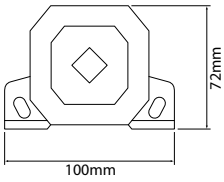
Body :	*30/400 Series*	*AES*
EMC :		*CE & 'e' marked*
Standards :	*Conforms to SAE J994 environmental*	
Operating Temperature :		*-40°C to + 85°C*
IP Rating :		*IP68*

Dual Function Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
DF**470**	12 - 24	102	1.25	0.3	Speaker	76 - 82

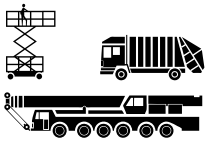






Dual Tone Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
DT**32**	12 - 24	90	1.1	0.2	Speaker	76	1
DT**460**	12 - 24	97	1.25	0.2	Speaker	76 - 82	2



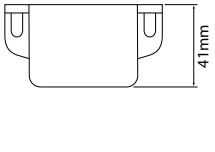
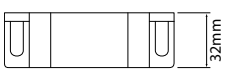


Fig.1



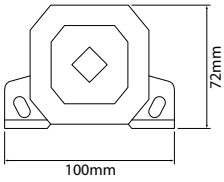


Fig.2

Constant Tone Speaker

Constant tone speakers are useful as forward horns, in-cab warning or other specialist applications.

bbs-tek constant tone speakers are safer than a conventional horn because of it's locatable/directional characteristics and elimination of nuisance noise.

For more information on the advantages of bbs-tek broadband sound alarms over conventional alarms see page 4.

12v to 24v — *Dual voltage 12V to 24V operation*

bbs tek technology provides locatable sound

J994 COMPLIANT — *Conforms to SAE J994 environmental standards*

2YR WARRANTY — *2 year warranty*

IP68 — *IP68 dust & waterproof. Can be steam & pressure cleaned (excl. 50 Series)*

Fully epoxy sealed for maximum vibration resistance (excl. 50 Series)

90 Series

Part No. CT57TCA-2

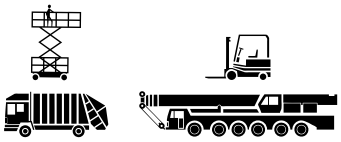
Part No. CT470

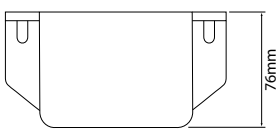
Constant Tone Specifications

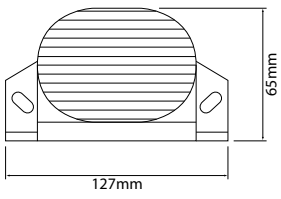
Body :	*50/90/400 Series*	*AES*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE J994 environmental*
Operating Temperature :		*-40°C to + 85°C*
IP Rating :	*90/400 Series*	*IP68*
	50 Series	*IP66*

Constant Tone Speaker Medium Duty - bbs-tek®

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm
CT**BBS**92	12 - 24	92	Multi	0.3	Speaker	98 - 108
CT**BBS**97	12 - 24	97	Multi	0.3	Speaker	98 - 108

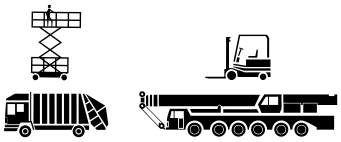






Constant Tone Speaker Medium Duty

Part No.	Volts DC	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Hole Centres - mm	Fig
CT**57**TCA-2*	12 - 24	90	1.3	0.02	Piezo	Single 8mm	1
CT**470**	12 - 24	102	1.25	0.3	Speaker	76 - 82	2



**Epoxy potted PCB*

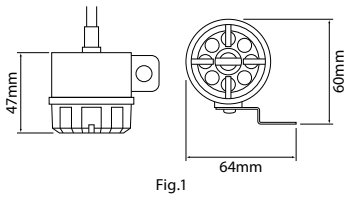
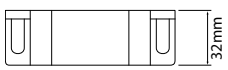


Fig.1



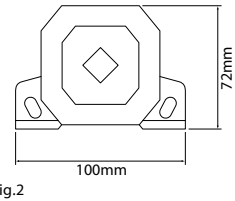


Fig.2

Disc & Scroll Type

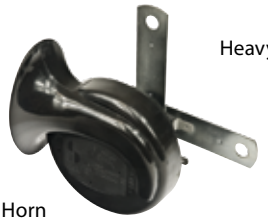
Total Source offer both disc and scroll horns suitable for light to heavy duty vehicles.

Both style horns are available in high and low frequency versions and all come with universal brackets.

The disc horns are available in a 12 or 24 volt kit consisting of both high and low frequency models.

Disc Horn

Heavy Duty Horn



Scroll Horn

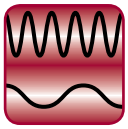
NEW in RAS2009

12V & 24V models available

12v or 24v

Flush & right-angle brackets standard with heavy duty horns

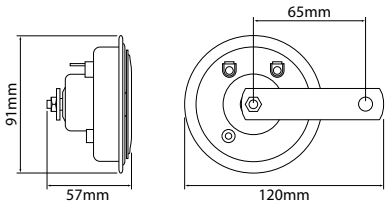
High or low frequency models available



Scroll horns feature dual mounting brackets for secure installation

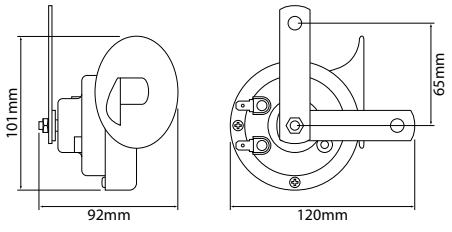
Disc Horns

Part No.	Voltage	Output - Hz	dB(A)	Description
D212**KIT**	12	Kit consisting of both high & low horns		
D224**KIT**	24	Kit consisting of both high & low horns		
D2H**12**	12	420	110	Twin terminal, high frequency
D2H**24**	24	420	110	Twin terminal, high frequency
D2L**12**	12	335	110	Twin terminal, low frequency
D2L**24**	24	335	110	Twin terminal, low frequency



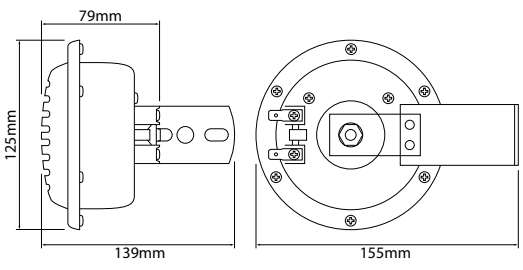
Scroll Horns

Part No.	Voltage	Output - Hz	dB(A)	Description
S2H**12**	12	505	110	Twin terminal, high frequency
S2L**12**	12	425	110	Twin terminal, low frequency



Heavy Duty Horns

Part No.	Voltage	Output - Hz	dB(A)	Description
SY**100**	12	395	120	Twin terminal, heavy duty
SY**101**	24	395	120	Twin terminal, heavy duty



Warning Buzzers

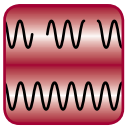
A range of economical and compact warning buzzers ideally suited for use within a closed environment or where generalised warning is required.

Not recommended to be used as an alternative to reversing alarms.

Models with 6V up to to 28V operation available

Extra compact B122

B657 epoxy filled



B657 can be wired to sound continuous or pulsed

Twin terminals on both B12 & B24

Part No. B12

Part No. B24

Part No. B122

Part No. B657

Warning Buzzers

Part No.	Voltage	Sound Level - dB(A)@1m	Frequency - kHz	Amps	Sounder Unit	Mount Hole Size	Fig
B12	12	85	350	0.03	Piezo	5mm	1
B24	24	85	350	0.03	Piezo	5mm	1
B122	9 - 15	75 @ 20cm	400	0.5	Mechanical	28mm centres	2
B657*	6 - 28	85	2900	0.18	Piezo	27mm	3

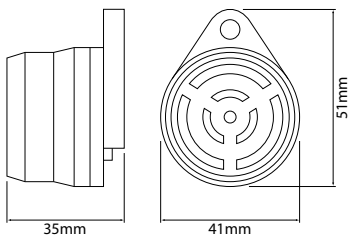


Fig.1

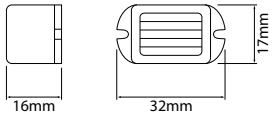


Fig.2

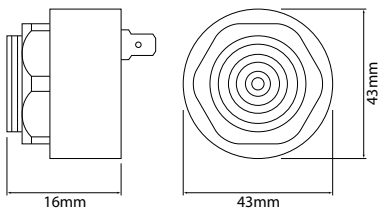


Fig.3

**Can be wired to sound continuous or pulsed.*

Activating Switches

A high quality range of IP65 rated, 10 amp switches to enable the easy activation and control of our reversing and warning alarms.

Switches with spring tail operate with full 360° movement.

Part No. SW15

Part No. SW22

Part No. SW33

Part No. SW27

SW27 & SW33 feature protective cover & boot

SW15 comes standard with adjustable mounting bracket

SW22 comes standard with mounting bolts

SW15 features heavy duty strain relief

SW22 compatible with Schlemmer range of Threadconnect adaptor kits

Switches with spring tail operate with full 360° movement

Can be configured as N/O or N/C

All switches are IP65 & rated to 10 amps max

Activating Switches

Part No.	Amps	Switch Contacts	Main Body Material	Hole Centres - mm	Fig
SW15	10	Three contacts - Common, N/O, N/C (changeover)	Die-cast	25	1
SW22	10	Three contacts - Common, N/O, N/C (changeover)	Plastic	22	2
SW27	10	Three contacts - Common, N/O, N/C (changeover)	Metal	25	3
SW33	10	Three contacts - Common, N/O, N/C (changeover)	Metal	25	4

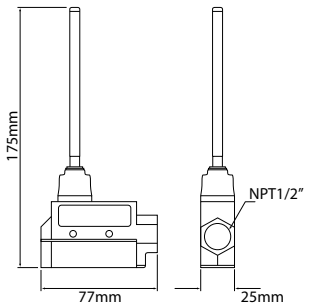


Fig.1

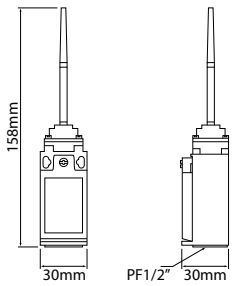


Fig.2

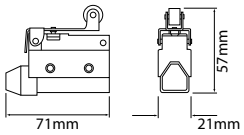


Fig.3

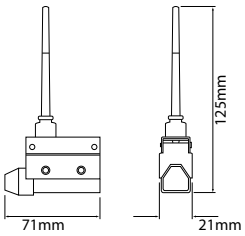


Fig.4

Siren Amplifiers

Total Source have a range of siren amplifiers suitable for most applications. Featuring models with public address and radio re-broadcast capabilities as well as compact hidden units that change tone with a quick tap of the horn.

Each type is available in either 12 or 24 volt and are compatible with most types of siren speaker.

12V & 24V models available

Horn activated tone changing on selected models

Public address on selected models

Up to 5 tones available

Radio re-broadcast on selected models

Soft start on selected models

EA1001 Series

Part No. SA500-12

Part No. SS700-24

Part No. 809-001/2

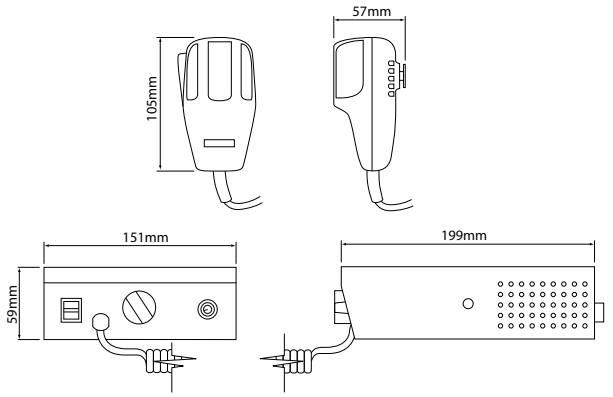
Part No. 809-004/6

Siren Amplifier PA - 60 Watt

Part No.	Voltage	Output	Description
EA1001/**12V**	12	60W	Amplifier & Microphone
EA1001/**24V**	24	60W	Amplifier & Microphone

Features
- *Public Address*

Tones:
- *Wail*
- *Yelp*
- *High Low*
- *Phaser*
- *Air Horn*

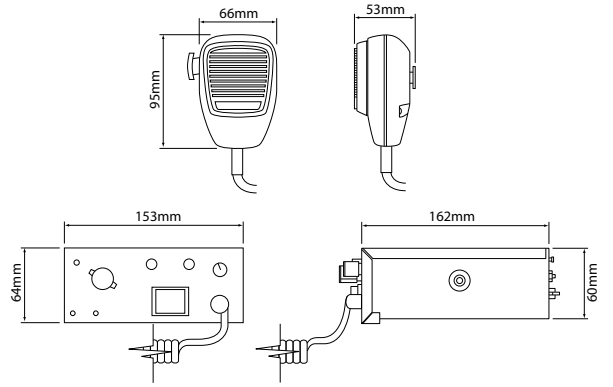


Siren Amplifier PA - 100Watt

Part No.	Voltage	Output	Description
SA500-**12**	12	100W	Amplifier & Microphone
SS700-**24**	24	100W	Amplifier & Microphone

Features
- *Public Address*
- *Radio Re-Broadcast*
- *Auxiliary Input*
- *Park Kill*
- *Horn ring cycler*
- *Manual & Alert settings*

Tones:
- *Wail*
- *Yelp*
- *Phaser*
- *Air Horn*

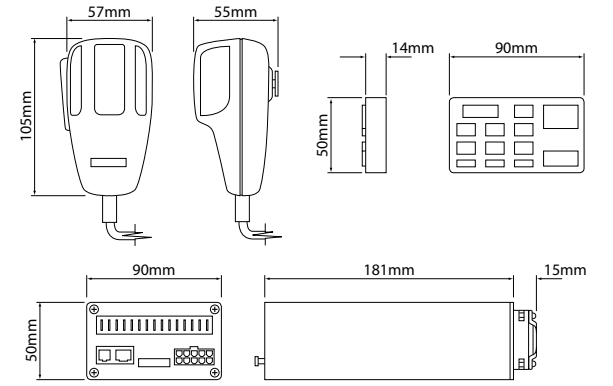


Siren Amplifier PA - Remote Head 100W

Part No.	Voltage	Output	Description
809-**001**	12	100W	Amplifier & Microphone
809-**002**	24	100W	Amplifier & Microphone

Features
- *Public Address*
- *Radio Re-Broadcast*
- *Park Kill*
- *Horn ring cycler*
- *Manual setting*
- *Softstart siren & manual wail*
- *Control Pad with 8 x lighting control*

Tones:
- *Wail*
- *Yelp*
- *Hi-Low*
- *Phaser*
- *Air Horn*

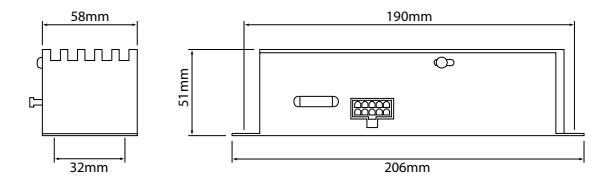


Siren Amplifier - Remote Head 100W

Part No.	Voltage	Output	Description
809-**004**	12	100W	Amplifier only
809-**006**	24	100W	Amplifier only

Features
- *Horn ring cycler*
- *Softstart siren*

Tones:
- *Wail*
- *Yelp*
- *Phaser*
- *Air Horn*

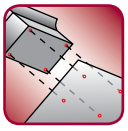


Siren Speakers

Total Source range of siren speakers can be used in a multitude of applications. Available in two styles, traditional two piece, driver and cone or one piece full die-cast models.

Built to the highest standards and available in 60 and 100 Watt, Total Source siren speakers are compatible with most brands of siren amplifier on the Australian market.

60 or 100 Watt models



Universal mount

Durable cast body

Polycarbonate speaker cone

Part No. TC60H

Part No. TC60/90

Part No. TC100H

Part No. SH3015

Part No. 810-011

Siren Speaker

Part No.	Watts	Weight	Figure
TC**60H**	60	2.4kg	1
TC**60/90**	60	2.4kg	2
TC**100H**	100	3kg	3

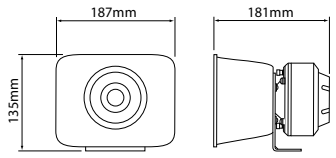


Fig.1

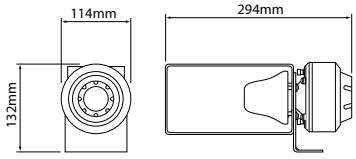


Fig.2

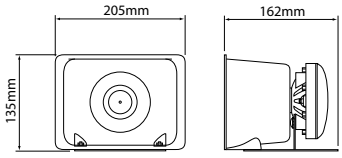


Fig.3

Siren Speaker - Alloy

Part No.	Watts	Weight	Figure
SH3**015**	100	4.2kg	1
810-**011**	100	3.29kg	2

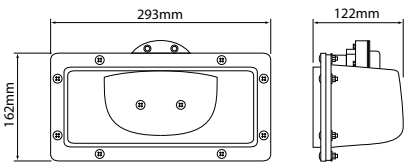


Fig.1

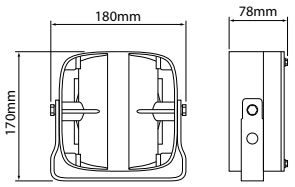


Fig.2

BACKCHAT® Intercom System

Originally designed and built to withstand the harsh conditions encountered by drilling machines used in the construction of the Channel Tunnel, the BACKCHAT two-way communication system is now available for all industries.

BACKCHAT is available in either simplex (voice activated rear microphone) or duplex (push button to talk on both ends), and provides clear, reliable communication that can be mounted internally or externally. Master unit includes volume control.

Ideal for any vehicle on which the driver needs to communicate with others not in the cab; e.g., garbage collection vehicle, horsebox, security vehicle, prisoner transport, etc.

Solid state, spark-free electronics

Epoxy sealed against mud, water & vibration

Dual voltage 12V to 24V operation

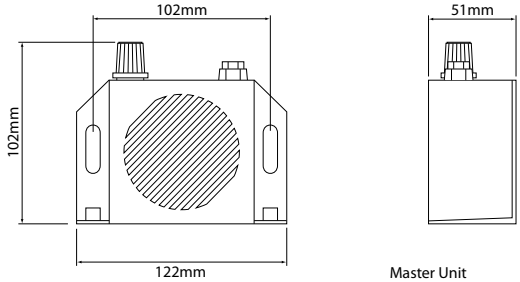
2 year warranty

IP68 dust & waterproof. Can be steam & pressure cleaned

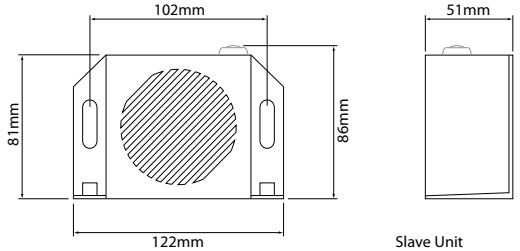
Three way communication using Duplex Kit & Slave

Part No. BCVI

Part No. BCVI-2



Master Unit



Slave Unit

BACKCHAT® Specifications

Voltage :		*12-24V*
Current Draw :		*0.4A*
Operating Temperature :		*-40°C to + 85°C*
Sound Level :		*80 - 90 dB(A) @ 1m*
Body :		*AES Plastic*
Harness Length :		*25m*
Weight :	*Master*	*0.3Kg*
	Slave	*0.27Kg*
IP Rating :		*IP67*
EMC :		*CE & 'e' marked*

BACKCHAT® Vehicle Intercoms

Part No.	Voltage	Description
BCVI	12-24	Simplex Kit - Voice Activated Slave
BCVI-**2**	12-24	Duplex Kit - Push to Talk Slave
BCVI-**SLAVE**	12-24	Simplex Slave Only - Voice Activated
BCVI-**2-SLAVE**	12-24	Duplex Slave Only - Push to Talk

Ultrasonic Sensors - Pro

Brigade's Backscan Pro range of Reversing Sensor Kits are top of the range ultrasonic reversing sensors. By indicating the distance from the rear of the vehicle to a person or obstacle, the driver is able to confidently determine how close potential hazards may be.

As soon as the reverse gear is engaged, the sensors, utilising the patented DSM feature, start scanning to the rear of the vehicle and a three stage warning is given to the driver.

The Pro range of Backscan Kits come standard with a single display providing a 3 stage visual and audible warning of potential obstacles. Both the ECU and sensors are fully sealed to IP68 for reliable protection against dust and moisture ingress.

Dual voltage 12V to 24V operation

Dynamic Scanning Memory

Up to 2.5m detection range

Audible & visual alert in one display

3 stage warning zones

IP68 on both sensors and ECU

2 YR WARRANTY

0° Flush Mount Sensor

7° Flush Mount Sensor

Pendant Mount Sensor

Audio/Visual Display

ECU

NEW in RAS2009

Part No. BS-430AW-KBP

Backscan - PRO Specifications

Voltage :		*12-24V*
Current Draw :		*0.2A*
Detention Range :		*up to 2.5m*
IP Rating :	*Sensors / ECU*	*IP68*
	Display	*IP54*
Operating Temp. :	*Display*	*-20°C to + 60°C*
	ECU / Sensors	*-20°C to + 80°C*
EMC :		*CE & 'e' marked*
Standards :		*RoHS compliant*

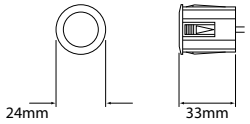
Backscan Pro - Kits

Part No.	Voltage	Sensor Type	Display Type	Detection Range
BS-**430AW**-KMP	12-24	0° Flush Mount*	Audio / Visual	2.5m
BS-**430AW**-KBP	12-24	7° Flush Mount	Audio / Visual	2.5m
BS-**430AW**-KXP	12-24	Pendant Mount	Audio / Visual	2.5m

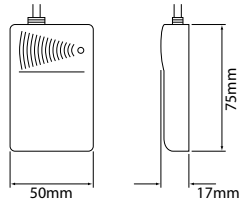
Kit contains:

- *4 x Sensor units*
- *Waterproof ECU*
- *Audio/visual display*
- *15m cable from ECU to display*
- *4 x 2.5m cables from ECU to sensors*
- *Hole Cutter*
- *Installation & Operation Manual*

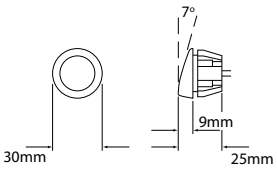
** Not suitable for use in metal panels or metal bumpers.*



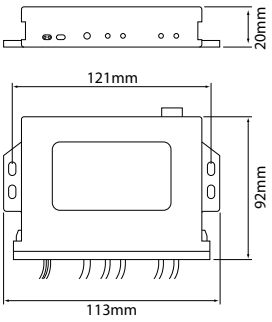
0° Flush Mount Sensor*



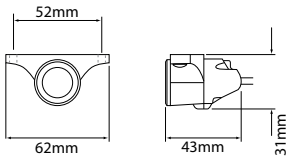
Audio/Visual Display



7° Flush Mount Sensor



ECU

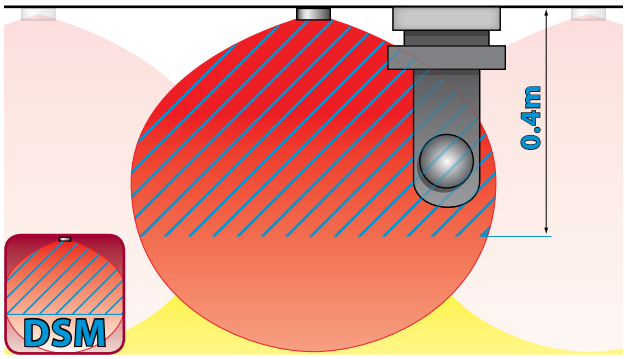


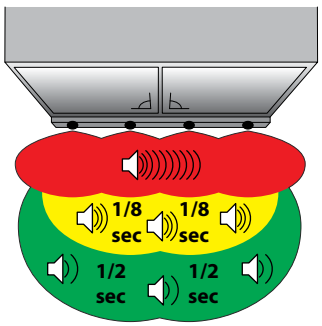
Pendant Mount Sensor

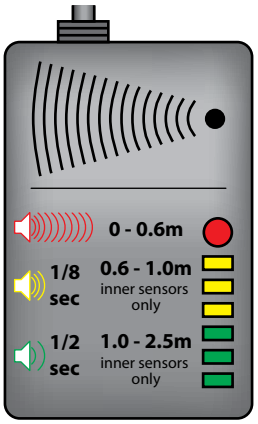
Backscan Pro Accessories

Part No.	Description
BS-**5X**AA	5m Display Extension Cable

DSM (Dynamic Scanning Memory) is included in all systems.
This unique, patented feature prevents 'false alarms' caused by static objects such as tow-hooks and other ancillary equipment that intrude into the first 40cm of each sensor's detection zone.







Ultrasonic Sensors - Pro +50

Brigade's Backscan Pro +50 range of Reversing Sensor Kits are top of the range ultrasonic reversing sensors. The Pro +50 sensor's detection zone starts 50cm away from the face of the sensors themselves. This provides an accurate detection zone when fitted to vehicles which have protrusions past the sensors, e.g. inboard bumper installation.

By indicating the distance from the rear of the vehicle to a person or obstacle, the driver is able to confidently determine how close potential hazards may be.

As soon as the reverse gear is engaged the sensors, utilising the patented DSM feature, start scanning to the rear of the vehicle and a three stage warning is given to the driver.

The Pro +50 range of ultrasonic Reversing Sensor Kits come standard with a single display providing a 3 stage visual and audible warning indicating potential obstacles. Both the ECU and sensors are fully sealed to IP68 for reliable protection against dust and moisture ingress.

Dual voltage 12V to 24V operation

Dynamic Scanning Memory

Up to 2.5m detection range

Audible & visual alert in one display

3 stage warning zones

IP68 on both sensors and ECU

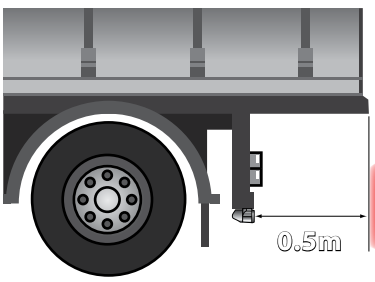
0° Flush Mount Sensor

7° Flush Mount Sensor

Pendant Mount Sensor

Audio/Visual Display

ECU



0.5 metre compensation for installation to vehicles with in-board bumpers / tray over hang.

Backscan - PRO +50 Specifications

Voltage :		*12-24V*
Current Draw :		*0.2A*
Detention Range :		*up to 2.5m*
IP Rating :	*Sensors / ECU*	*IP68*
	Display	*IP54*
Operating Temp. :	*Display*	*-20°C to + 60°C*
	ECU / Sensors	*-20°C to + 80°C*
EMC :		*CE & 'e' marked*
Standards :		*RoHS compliant*

Backscan Pro +50 - Kits

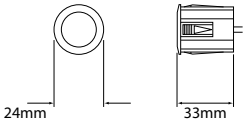
Part No.	Voltage	Sensor Type	Display Type	Detection Range
BS-**435AW**-KMP	12-24	0° Flush Mount*	Audio / Visual	2.5m (+0.5m compensation)
BS-**435AW**-KBP	12-24	7° Flush Mount	Audio / Visual	2.5m (+0.5m compensation)
BS-**435AW**-KXP	12-24	Pendant Mount	Audio / Visual	2.5m (+0.5m compensation)

Kit contains:

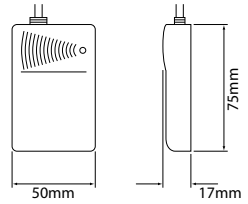
- *4 x Sensor units*
- *Waterproof ECU*
- *Audio/visual display*
- *15m cable from ECU to display*
- *4 x 2.5m cables from ECU to sensors*
- *Hole Cutter*
- *Installation & Operation Manual*

Additional 0.5m compensation for in-board installation to rear of vehicle.

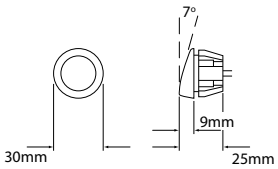
**Not suitable for use in metal panels or metal bumpers.*



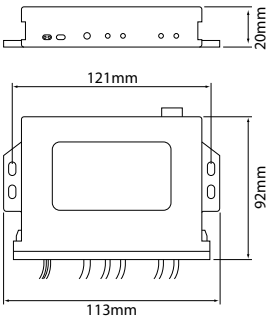
0° Flush Mount Sensor*



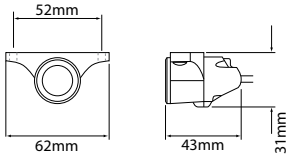
Audio/Visual Display



7° Flush Mount Sensor



ECU

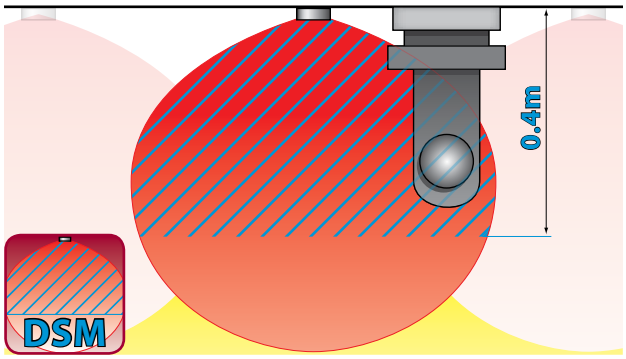


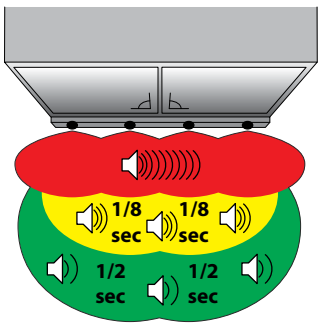
Pendant Mount Sensor

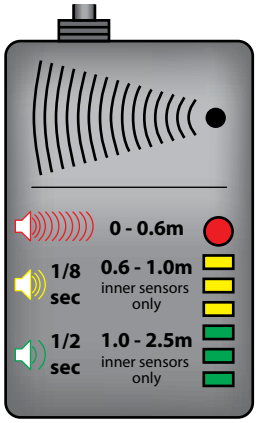
Backscan Pro +50 Accessories

Part No.	Description
BS-**5X**AA	5m Display Extension Cable

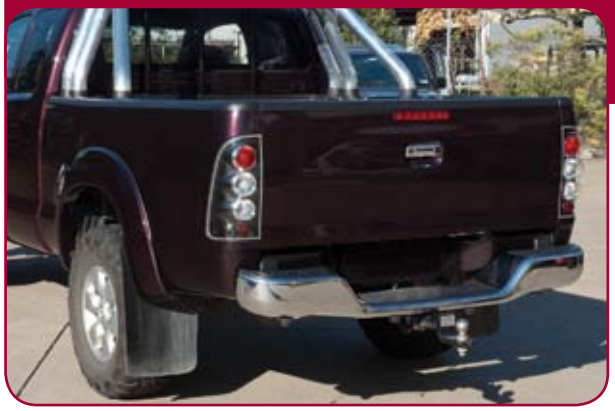
DSM (Dynamic Scanning Memory) is included in all systems.
This unique, patented feature prevents 'false alarms' caused by static objects such as tow-hooks and other ancillary equipment that intrude into the first 40cm of each sensor's detection zone.







Ultrasonic Sensors - Standard



The Backscan Standard series of Reversing Sensor Kits utilise the same top of the range ultrasonic reversing sensors as the Pro range and come with either a 1.5m or 2.5m detection range.

As soon as the reverse gear is engaged the sensors, utilising the patented DSM feature, start scanning to the rear of the vehicle and a three stage audible warning is given to the driver. A separate visual display is also provided in the 2.5m models only.

Utilising Backscan Reversing Sensors Kits make vehicle operation a more relaxed and safer experience.

12v to 24v — *Dual voltage 12V to 24V operation*

DSM — *Dynamic Scanning Memory*

2.5 METRES — *Up to 2.5m detection range*

Audible only alert in 1.5m models. Additional visual alert in 2.5m models

3 stage warning zones

IP68 — *IP68 sensors*

2 YR WARRANTY

0° Flush Mount Sensor

7° Flush Mount Sensor

Pendant Mount Sensor

Display

Buzzer

ECU

Part No. BS-420A-KXP

NEW in RAS2009

Backscan - Standard Specifications

Voltage :		*12-24V*
Current Draw :		*0.5A*
Detention Range :		*up to 2.5m*
IP Rating :	*Sensors*	*IP68*
	ECU / Display / Buzzer	*IP54*
Operating Temp. :	*Buzzer / Display*	*-20°C to + 60°C*
	ECU / Sensors	*-20°C to + 80°C*
EMC :		*CE & 'e' marked*
Standards :		*RoHS compliant*

Backscan - Kits

Part No.	Voltage	Sensor Type	Display Type	Detection Range
BS-**415A**-KMP	12-24	0° Flush Mount*	Buzzer	1.5m
BS-**415A**-KBP	12-24	7° Flush Mount	Buzzer	1.5m
BS-**415A**-KXP	12-24	Pendant Mount	Buzzer	1.5m
BS-**420A**-KMP	12-24	0° Flush Mount*	Buzzer & Display	2.5m
BS-**420A**-KBP	12-24	7° Flush Mount	Buzzer & Display	2.5m
BS-**420A**-KXP	12-24	Pendant Mount	Buzzer & Display	2.5m

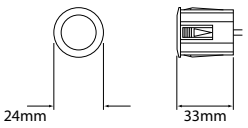
BS-415A *Kit contains:*

- *4 x Sensor units*
- *ECU*
- *Buzzer*
- *10m cable from ECU to buzzer*
- *4 x 2.5m cables from ECU to sensors*
- *Hole Cutter*
- *Installation & Operation Manual*

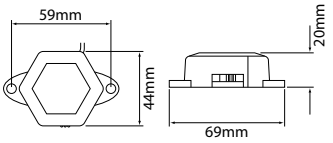
BS-420A *Kit contains:*

- *4 x Sensor units*
- *ECU*
- *Buzzer*
- *Display*
- *10m cable from ECU to buzzer*
- *10m cable from ECU to display*
- *4 x 2.5m cables from ECU to sensors*
- *Hole Cutter*
- *Installation & Operation Manual*

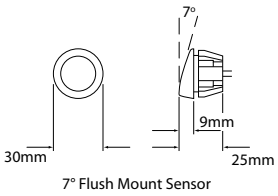
** Not suitable for use in metal panels or metal bumpers.*



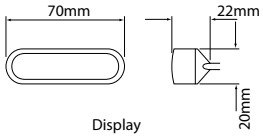
0° Flush Mount Sensor*



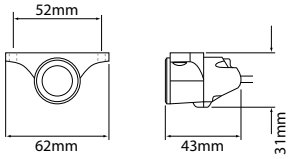
Buzzer



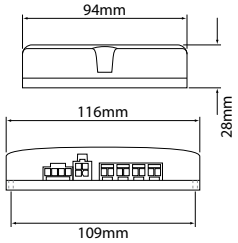
7° Flush Mount Sensor



Display



Pendant Mount Sensor



ECU

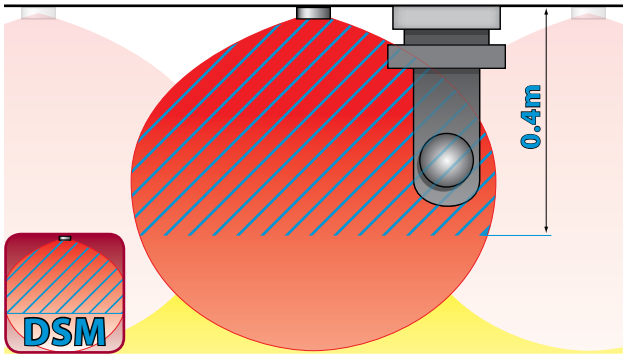
Backscan Accessories

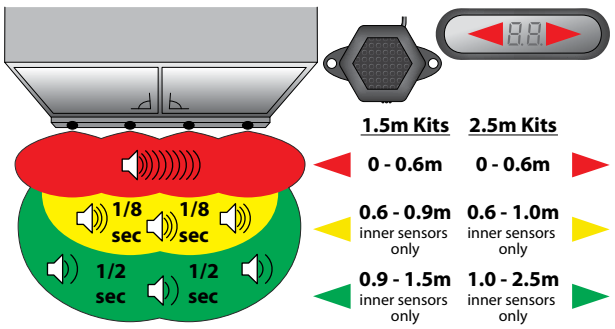
Part No.	Description	Fig.
BS-**5X**AA	5m Display Extension Cable	1
BS-**5X**AB	5m Buzzer Extension Cable	2

Fig.1

Fig.2

DSM (Dynamic Scanning Memory) is included in all systems.
This unique, patented feature prevents 'false alarms' caused by static objects such as tow-hooks and other ancillary equipment that intrude into the first 40cm of each sensor's detection zone.





BRIGADE®

Pulsed Radar Reversing Sensor

Backsense utilises pulsed radar technology to detect people and objects at a longer range than is typical with ultrasonic reversing aids, making Backsense ideal for heavy goods vehicles, construction vehicles and mobile plant machinery.

Designed to work on the front, side or rear of vehicles, one sensor is sufficient to cover a single zone on all but the largest of machines.

Backsense can work as a 'stand-alone' system or can be integrated with another Brigade reversing system such as CCTV systems and reversing alarms.

Dual voltage 12V to 24V operation

Up to 6m detection zone

In cab audible & visual alert

Sensor unit fully epoxy sealed for maximum vibration resistance

Auxilary output enables additional items to be activated upon detection

Not affected by temperature extremes, dirt, dust, rain, sleet, snow, or fog

IP68 dust & waterproof. Can be steam & pressure cleaned

2YR WARRANTY

NEW in RAS2009

Backsense Specifications

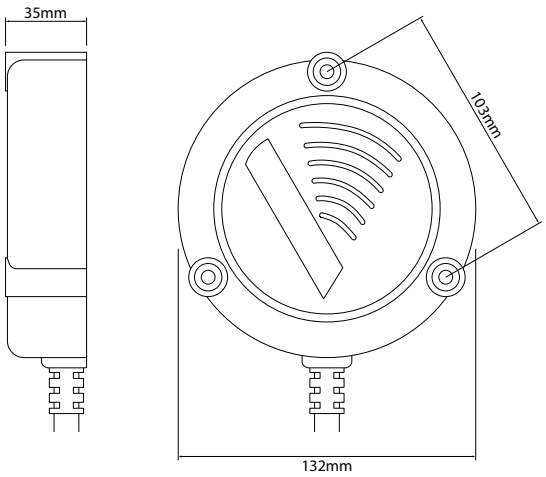
Voltage :		*9.8 - 33V*
Current Draw :		*0.25A*
Relay Output :		*Normally Open, 1A Max. Continuous*
Operating Temperature :		*-40°C to + 85°C*
Radar Frequency :		*5.8GHz*
Beam Angle :	*Vertical*	*20°*
	Horizontal	*55°*
Visual Warning :		*5 x LEDs*
Audio Warning :		*3 Rates*
EMC :		*CE & 'e' marked*
Standards :		*Conforms to SAE 1455 environmental*
Body :	*Radar Sensor*	*Polycarbonate*
	Display	*Polycarbonate & ABS*
Harness Length :		*7.5m*
Weight :	*Radar Sensor*	*0.8Kg*
	Display	*0.11Kg*
IP Rating :		*IP68*

Backsense Radar System

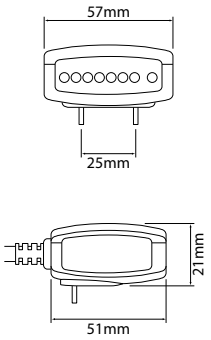
Part No.	Voltage	Sensor Type	Display Type	Detection Range
BS**1030**	12-24	Surface Mount	Audio / Visual	3m
BS**1045**	12-24	Surface Mount	Audio / Visual	4.5m
BS**1060**	12-24	Surface Mount	Audio / Visual	6m

Kit contains:

- *Sensor unit*
- *Audio/visual display*
- *7m cable from sensor to display*
- *Sensor & display mounting hardware*
- *Installation & Operation Manual*



Surface Mount Sensor

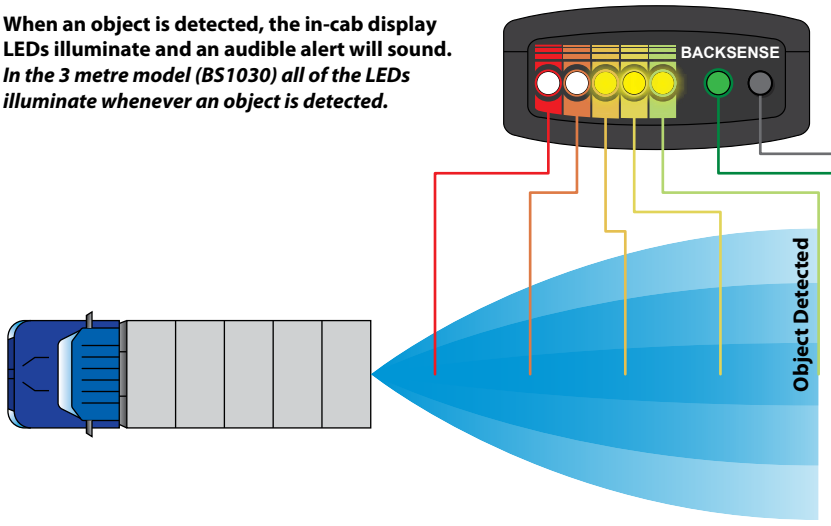


Display

Backsense Accessories

Part No.	Description
SPV**2110**	3m Extension Cable
SPV**2115**	4.5m Extension Cable
SPV**2125**	7.5m Extension Cable
SPV**2150**	15m Extension Cable

When an object is detected, the in-cab display LEDs illuminate and an audible alert will sound. ***In the 3 metre model (BS1030) all of the LEDs illuminate whenever an object is detected.***



Volume Control Switch
Momentary push button switch controls buzzer volume.
Four volume levels selectable including a mute setting.

Power On LED:
Illuminates continuously after power is applied to the system. The Power On LED will blink quickly if a system malfunction has occured.

BRIGADE®

When it comes to CCTV systems Brigade offers a wide range of reversing safety solutions guaranteed to satisfy the strict requirements of today's varied working vehicle industry.

Whether it's a simple camera to monitor system or a more complex CCTV setup involving thermal imaging cameras and cable-free video transfer, Total Source has what you need.

CCTV Overview

LCD TFT monitors

Digital video recorders

Pulse power line transmitter & receiver

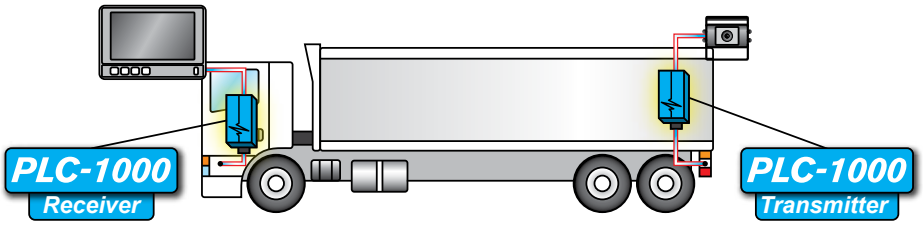
FLIR Thermal imaging cameras

Colour low-light cameras

Surface mount wide viewing angle cameras

Power Line Communicator

REVERSING CAMERA SYSTEM WITHOUT VIDEO CABLES!

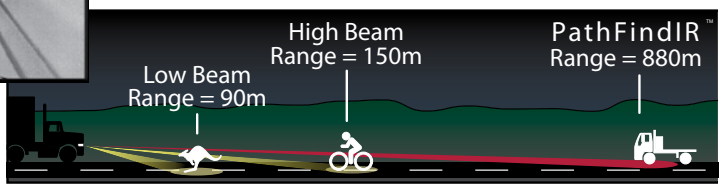


Digital Video Recording Systems

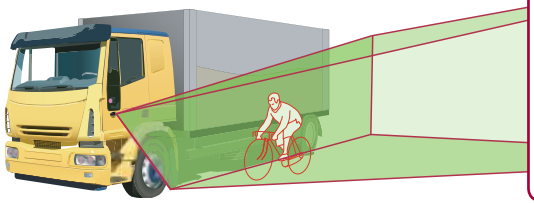
VIDEO SURVEILLANCE

FLIR Thermal Imaging Camera

SEE MORE, BE SAFER!



All Round Visibility with BE-300 Series Cameras



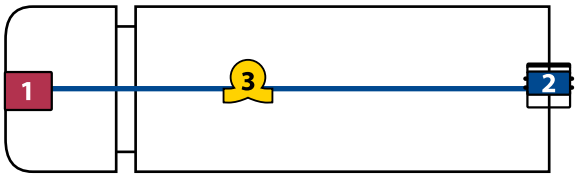
COMPACT, SURFACE MOUNT CAMERAS

The ground breaking, compact all aluminium, BE-300 Series cameras give a clear view of blind spots that exist in spite of conventional mirrors.

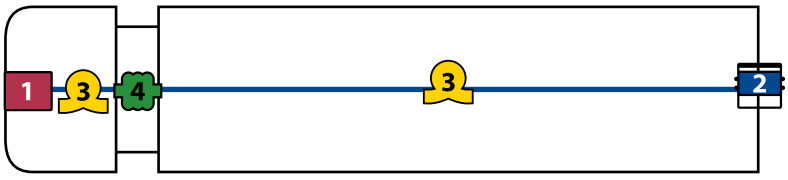
Compatible with both Backeye & Value range monitors, each tiny camera will clearly reveal those hard to see areas around the vehicle.

System Configurations

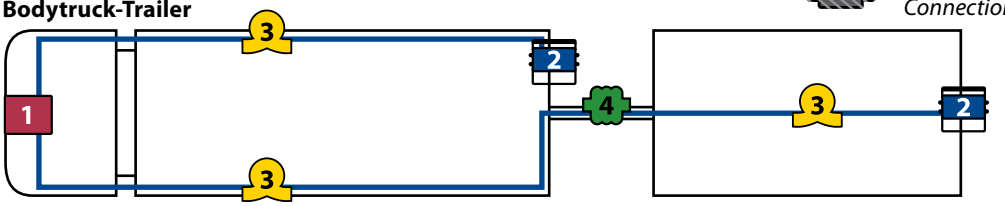
Bodytruck



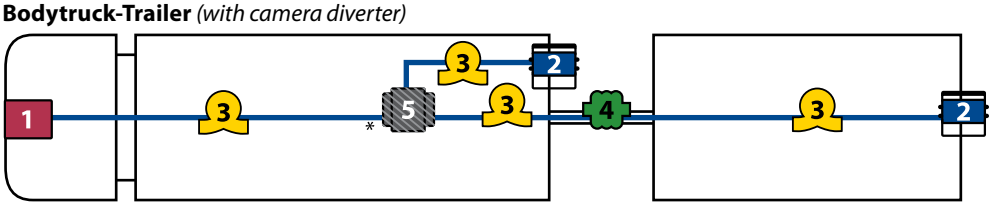
Truck-Trailer



Bodytruck-Trailer



Bodytruck-Trailer *(with camera diverter)*



Monitor -
Select monitor keeping in mind size & camera inputs.

Camera -
Select camera to suit the application.

Cable -
*At least one cable is required connecting the monitor to the camera. *Pulse system also available. Refer to page 49.*

Connections -
If your system is intended for Truck-Trailer or Bodytruck-Trailer application, both connectors and suzi coils are required.

Optional Camera Diverter -
See Backeye / Value Cables & Connections.

Bodytruck-Trailer
*Optional camera diverter box **CS**-020 / **VCS**-020 automatically selects rearmost camera when auxiliary trailer is attached or removed.*

Backeye® Monitors

The Backeye series camera systems are Brigade's premium range of closed circuit television systems. Backed with a 3 year warranty these camera systems are built tough to withstand harsh treatment.

Even under extreme vibration, temperature, and weather conditions the Backeye range of camera systems continue operating, ensuring a safer and more relaxed driving experience.

Ideal for almost any applications from heavy earth moving machinery, to light duty commercial vehicles.

Colour LCD with anti reflective coating

LED backlighting with auto dimmer function

Dual voltage 12V to 24V operation

Up to 4 camera inputs & 4 way split screen

Electronic distance markers

Built-in speaker

Mirror or Normal views

Auto on when reverse gear engaged

Remote control included

Monitors come standard with adjustable mount

Part No. BE-856EM

Part No. BE-870FM / BE-870EM

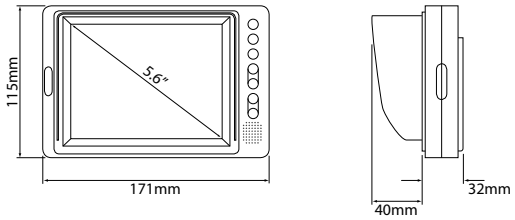
Backeye® Monitor Specifications

Voltage :		*12-24V*
Current Draw :		*1.5Amps*
Video Signal :		*NTSC & PAL*
Audio :		*Integrated Speaker*
Vibration :	*BE-856EM*	*4G*
	BE-870EM / BE-870FM	*15G*
Operating Temp :	*BE-856EM*	*-10°C to +50°C*
	BE-870EM / BE-870FM	*-20°C to +65°C*
EMC:	*BE-870EM / BE-870FM*	*C-Tick*

Backeye® 5.6" Monitor

Part No.	Screen Size	Screen Resolution	Camera Inputs	Split Screen	AV Input	AV Output
BE-**856EM**	5.6"	960 x 234	2	Nil	1	Nil

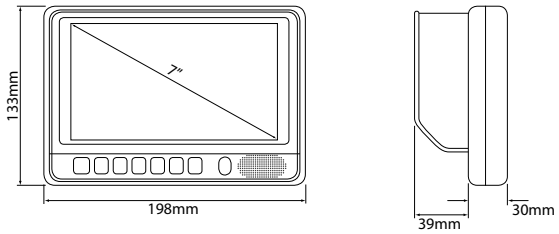
1



Backeye® 7" Monitors

Part No.	Screen Size	Screen Resolution	Camera Inputs	Split Screen	AV Input	Video Output
BE-**870EM**	7"	1440 x 234	2	Nil	1	Nil
BE-**870FM**	7"	1440 x 234	4	2, 3 & 4	1	1

1



Backeye® Monitor Accessories

Part No.	Description	Fig
AC-**012**	Adaptor to allow 2x Backeye Series monitors to connect to a single Backeye Series camera	1
BMM-**011**	Heavy duty mount to suit BE 5.6" monitor	2
BMM-**014**	Heavy duty mount to suit BE 7" monitor	3

Fig.1

Fig.2

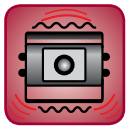
Fig.3

Backeye® Cameras

The Backeye series camera systems are Brigade's premium range of closed circuit television systems. Backed with a 3 year warranty (excluding MD-50), these camera systems are built tough to withstand harsh treatment.

Even under extreme vibration, temperature, and weather conditions the Backeye range of camera systems continue operating, ensuring a safer and more relaxed driving experience.

New to the range are the MD-50 Mini-Dome camera for compact, discreet installation to ceiling or wall panels and the BE-840R with a motorised tilt lens, capable of automatically shifting the viewing area from directly below where the camera is mounted to a standard reversing camera angle. (BE-840C operates in the opposite direction).



Vibration resistant rugged construction

Wide angle view

Ultra low light performance 0.1 lx

Weather proof sealed to IP68

BE-890C - IP69K for protection against steam/pressure cleaning

MD-50 compact surface mount design

Protective camera enclosure available for BE-800C cameras

BE-800C available in 3 viewing angles (32°, 65°, & 105°)

Automatic or manually activated motorised tilt lens

Part No. MD-50

Part No. BE-300C

Part No. BE-800C

Part No. BE-810C

Part No. BE-840R

Backeye® Camera Specifications

Voltage :		*12-24V*
Pixels :	*BE-800 Series / MD-50*	*320,000*
	BE-300 Series	*290,000*
Image Sensor :		*1/3" Sony® CCD*
Microphone :	*BE-800C / BE-810C / BE-840C*	*Yes*
	BE-890C / BE-300 Series / MD-50	*No*
Heating :	*BE-800 Series*	*Auto below +10°C*
	BE-300 Series / MD-50	*No*
Vibration :	*BE-300 Series*	*20G*
	BE-800C / BE-840C	*10G*
	BE-810C / MD-50	*5G*
Body :		*Aluminium*
EMC:	*BE-300 / 800 Series*	*C-Tick*

Backeye® Cameras - 800 Series

Part No.	Mount	Min. Illumination	IP Rating	Protective Shutter	Operating Temp.	Field of View	Figure
BE-**800C**	Pedestal	0.1 lx	IP68	Nil	-30°C to +70°C	105°Hor. 78°Vert.	1
BE-**800C-32**	Pedestal	0.1 lx	IP68	Nil	-30°C to +70°C	32°Hor. 25°Vert.	1
BE-**800C-65**	Pedestal	0.1 lx	IP68	Nil	-30°C to +70°C	65°Hor. 50°Vert.	1
BE-**890C**	Pedestal	0.1 lx	IP69K	Nil	-30°C to +70°C	105°Hor. 78°Vert.	1
BE-**810C**	Pedestal	0.5 lx	IP68	Automatic	-30°C to +50°C	105°Hor. 78°Vert.	2
905**A32**	Protective camera enclosure to suit BE-800 series cameras (excludes BE-810C, BE-840C & BE-840R).						3

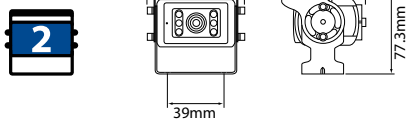


Fig.1

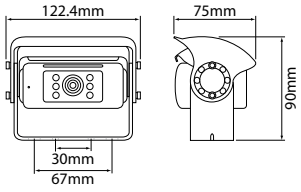
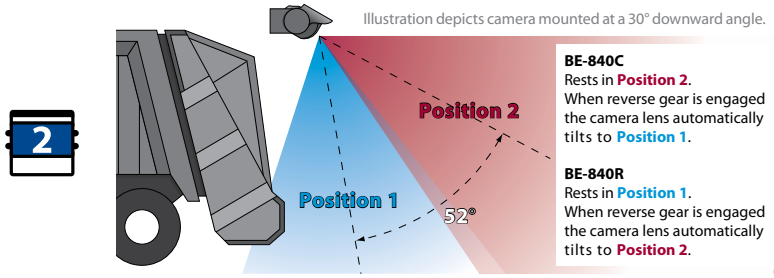


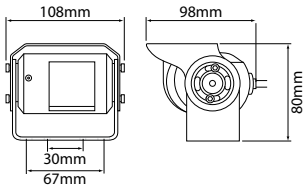
Fig.2

Fig.3

Backeye® Camera - Motorised Tilt Lens

Part No.	Mount	Min. Illumination	IP Rating	Operating Temp.	Lens Tilt Position	Field of View
BE-**840C**	Pedestal	0.1 lx	IP68	-30°C to +50°C	From 2 to 1	74°Hor. 56°Vert.
BE-**840R**	Pedestal	0.1 lx	IP68	-30°C to +50°C	From 1 to 2	74°Hor. 56°Vert.

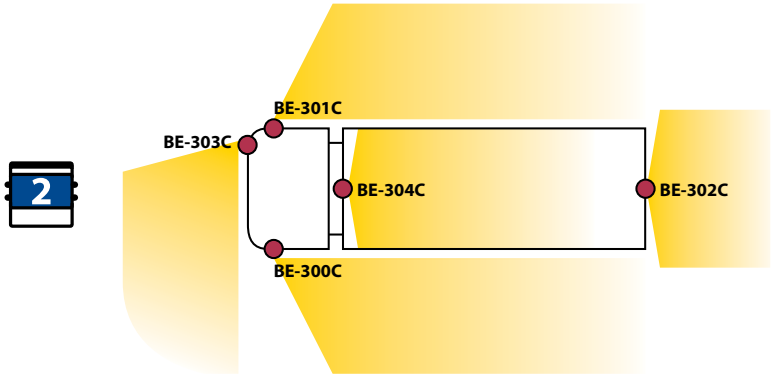

2
Illustration depicts camera mounted at a 30° downward angle.
Position 2
Position 1
52°
BE-840C
Rests in Position 2.
When reverse gear is engaged the camera lens automatically tilts to Position 1.
BE-840R
Rests in Position 1.
When reverse gear is engaged the camera lens automatically tilts to Position 2.

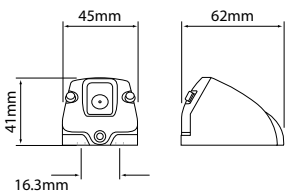


Compatible with Backeye BE-870FM monitor only. Refer page 35.

Backeye® Cameras - 300 Series

Part No.	Mount	Min. Illumination	IP Rating	Operating Temp.	Field of View
BE-**300C**	Left	0.1 lx	IP68	-30°C to +80°C	95°Hor. 72°Vert.
BE-**301C**	Right	0.1 lx	IP68	-30°C to +80°C	95°Hor. 72°Vert.
BE-**302C**	Rear	0.1 lx	IP68	-30°C to +80°C	95°Hor. 72°Vert.
BE-**303C**	Front	0.1 lx	IP68	-30°C to +80°C	95°Hor. 72°Vert.
BE-**304C**	Pendant	0.1 lx	IP68	-30°C to +80°C	95°Hor. 72°Vert.





Backeye® Cameras - Dome Surface Mount

Part No.	Mount	Min. Illumination	IP Rating	Operating Temp.	Field of View	Figure
MD-**50**	Flush	0.4 lx	IP66	-10°C to +50°C	79°Hor. 69°Vert.	1
MD-**50SM**	Surface mounting adaptor. Raises housing 20mm.					2
MD-**50AM**	Angle surface mounting adaptor. Adds approx. 15 degrees to the vertical/horizontal view.					3

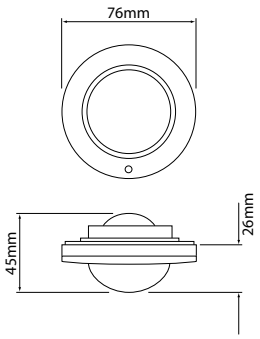


Fig.1

Fig.2

Fig.3

Backeye® Cables & Connections

Description	3m	5m	10m	15m	20m	25m	30m	Figure
Standard cable	-	BE-**L105**	BE-**L110**	BE-**L115**	BE-**L120**	-	BE-**L130**	1
Extension cable	BE-**X003**	BE-**X005**	BE-**X010**	BE-**X015**	BE-**X020**	BE-**X025**	-	2

Standard cables used to connect camera to monitor.
Extension cables connect from standard cables to monitor.

Part No.	Description	Figure
SC-**07**	Suzi Coil for joining SP-07A to SP-07B	3
SP-**07A**	Cab side connector	4
SP-**07B**	Trailer side connector	4
CS-**020**	Optional camera diverter allowing automatic rearmost camera selection when trailer connected	5

Fig.1

Fig.3

Fig.5

Fig.2

Fig.4

Catalogues

Lighting

- Heavy Duty LED
- Heavy Duty HID
- HID Driving Lights
- Heavy Duty Halogen
- General Purpose
- Interior Lighting

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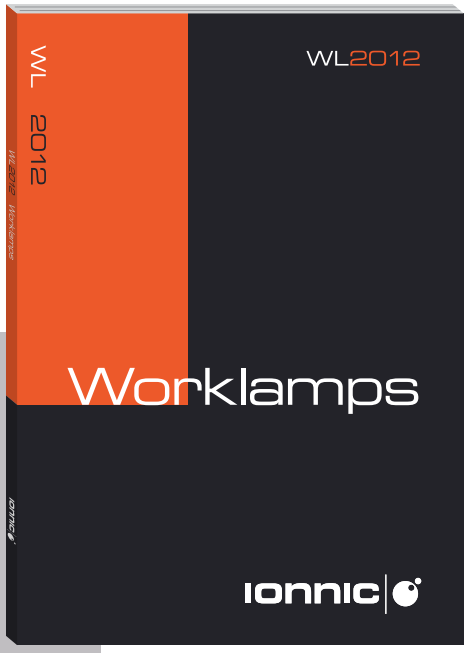

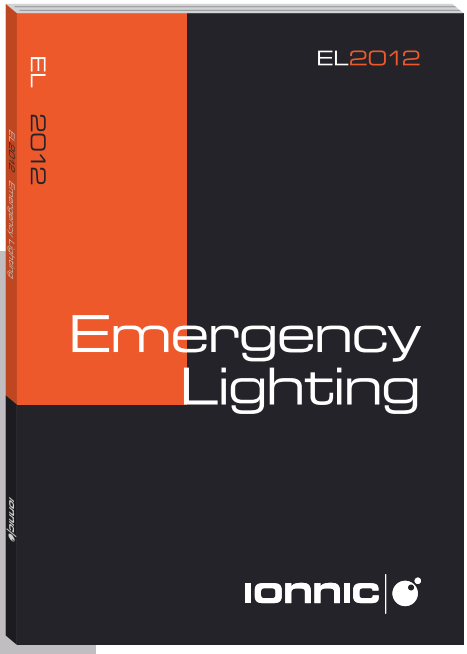

- LED & Halogen Beacons
- Strobes
- Lightbars
- Minebars
- ROPS Bar
- Directional Arrows
- LED Lighting
- Bus Warning Light Kits
- Flasher Units

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Lighting | Safety | Electrical

Backeye® Weatherproof Kit

The Backeye Weatherproof Kit is a heavy duty reverse monitor and camera system designed for use in the harshest of conditions and can be installed conventionally in cabin or externally on almost all vehicle types.

The kit is supplied with all components needed for a single camera system and up to 3 additional Backeye Series cameras can be added.

The kit features an IP67 rated weatherproof monitor with up to 4 way split screen, a rugged IP68 rated camera with stainless steel fittings and 20m harness with waterproof connections.

IP67 Weatherproof - perfectly suited for outdoor environments

Standard with heavy duty adjustable monitor mount

Dual voltage 12V to 24V operation

4 Camera inputs with up to 4 way split screen

AV input & output

Built-in speaker

LED backlighting with auto dimmer function

Standard with sun visor

Ultra low light performance 0.1lx

Wide angle view

10G Vibration resistant rugged construction IP68

Weatherproof monitor is rated to **IP67!** ideal for outdoor environments

NEW in RAS2009

3 YR WARRANTY

Backeye® Camera Specifications

Image Sensor :	*Sony® CCD & Sony® DSP*
Min. Illumination :	*0.1 lx*
Microphone :	*Yes*
Heating :	*Auto below 0º*
Pixels :	*291,000*
Field of View :	*104°Hor. 78°Vert.*
Body :	*Aluminium*
Operating Temperature :	*-50°C to +80°C*
IP Rating :	*IP68*
Vibration :	*10G*
Standards :	*SAE J1994, SAE J1455*
EMC :	*C-Tick & ISO 13766 EMC 2006/28/EC*

Backeye® Monitor Specifications

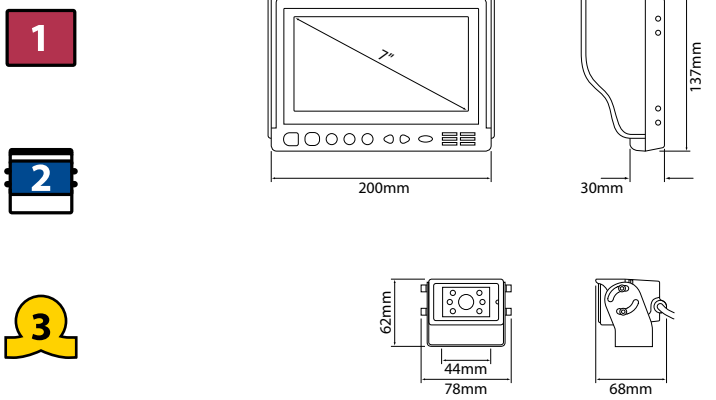
Current Draw :	*0.5Amps @ 12V*
Voltage :	*10-32V*
Video Signal :	*NTSC & PAL*
Audio :	*Integrated Speaker*
Camera Inputs :	*4*
AV Input :	*1*
Screen Size :	*7"*
Screen Resolution :	*1440 x 234*
Split Screen :	*2, 3 & 4*
Operating Temperature :	*-30°C to +80°C*
IP Rating :	*IP67*
Vibration :	*12G*
Standards :	*SAE J1994, SAE J1455*
EMC :	*C-Tick & ISO 13766 EMC for earth moving vehicles*

Backeye® Weatherproof Kit

Part No.	Voltage	Description
BE-**970**-000	12-24	Heavy duty 7″ weatherproof monitor & camera kit

Kit contains:

- *1x Weatherproof 7″ monitor*
- *1x Camera*
- *1x 20m cable*
- *1x Heavy Duty adjustable monitor mount*



Compatible with Backeye Series cables - see page 38.

Value Monitors

The Brigade Value range offers the greatest value for a closed circuit camera system without substituting quality, performance or reliability.

The Value range of monitors are made from high quality materials and components including brand new 'A' grade TFT LCD flat screen monitors, glass lenses, and high quality CCD imaging sensors, all covered by a 2 year warranty.

Colour LCD with anti reflective coating

Auto dimmer function

Dual voltage 12V to 24V operation

Up to 3 camera inputs

Electronic distance markers

Built-in speaker

Mirror or Normal views

Remote control included

Monitors come standard with adjustable mount

Part No. VBV-750BM

2 YR WARRANTY

Part No. VBV-770BM

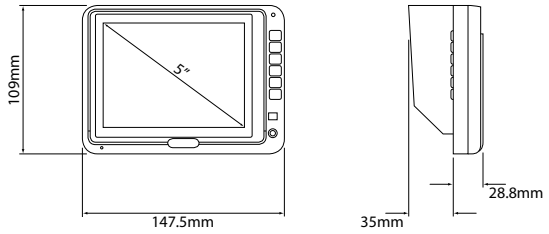
Value Monitor Specifications

Voltage :		*12-24V*
Current Draw :	*VBV-750BM*	*0.7Amps @ 12V*
	VBV-770BM	*0.8Amps @ 12V*
Video Signal :		*NTSC & PAL*
Audio :		*Integrated Speaker /Headphone Jack*
Vibration :		*10G*
Operating Temperature :		*-20°C to +70°C*
EMC:	*VBV-750BM*	*C-Tick*

Value 5" Monitor

Part No.	Screen Size	Screen Resolution	Camera Inputs	AV Input	AV Output
VBV-**750DM**	5" LCD	640 x 480	3	1	Nil

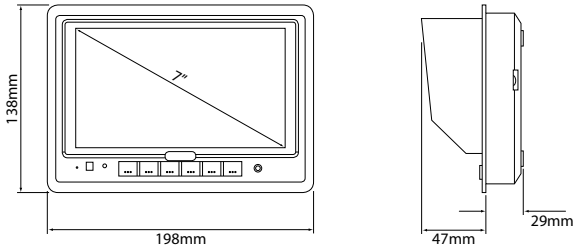
1



Value 7" Monitor

Part No.	Screen Size	Screen Resolution	Camera Inputs	AV Input	AV Output
VBV-**770DM**	7" LCD	800 x 480	3	1	1

1



Value Monitor Accessories

Part No.	Description
BMM-**011**	Heavy duty mount to suit Value monitors

Value Cameras

The Brigade Value range offers the greatest value for a closed circuit camera system without substituting quality, performance or reliability.

The VBV-700C is a pedestal mount camera for the Value range featuring low-light illumination, wide angle viewing and 10G vibration resistance.

The VBV-485C cylinder camera is the ideal solution for vehicles where installation to the bumper is the best and in some cases only option. It can also be used for internal use. It has 9 infra-red LEDs for ultra-low light performance and can be flush mounted for a neat and secure installation.

The compact and tough **BE-300 Series cameras are also compatible with Value series monitors** allowing the addition of high quality panel mount cameras. Featuring cast housing and low line design the BE300 suits applications where space is limited or in instances where conventional cameras may be prone to damage from external impacts such as tree branches etc.

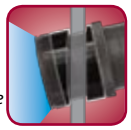
10G Vibration resistant rugged construction

Wide angle view

Ultra low light performance

VBV-700C & VBV-485C weather proof sealed to IP67

VBV-790C - IP69K for protection against steam/pressure cleaning



VBV-485C standard with angled spacers for mounting on sloping surfaces

Easily concealed VBV-485C surface mount camera

Part No. VBV-700C / VBV-790C

NEW in RAS2009

Part No. VBV-485C

Value Camera Specifications

Voltage :	*12V (supplied from monitor)*	
Pixels :		*300,000*
Image Sensor :		*1/3" Sharp® CCD*
Microphone :	*VBV-700C*	*Yes*
	VBV-485C/VBV-790C	*No*
Vibration :		*10G*
Body :		*Aluminium*
EMC:	*VBV-700/790C*	*C-Tick*

Value Cameras

Part No.	Mount	Min. Illumination	IP Rating	Operating Temp.	Field of View	Figure
VBV-**485C**	Flush	0.1 lx	IP67	-20°C to +60°C	98°Hor. 75°Vert.	1
VBV-**700C**	Pedestal	0.1 lx	IP67	-20°C to +70°C	88°Hor. 66°Vert.	2
VBV-**790C**	Pedestal	0.1 lx	IP69K	-20°C to +70°C	88°Hor. 66°Vert.	2

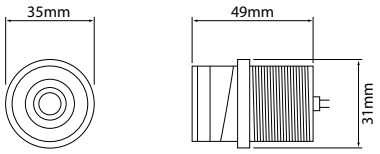


Fig.1

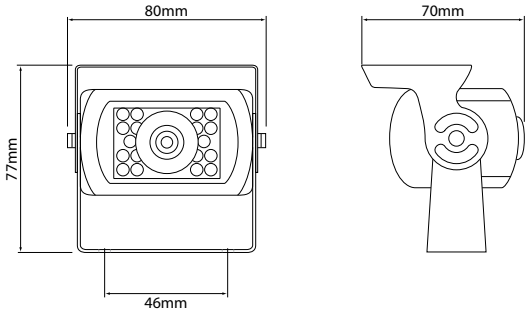


Fig.2

BE-300 Series cameras compatible with Value Series monitors - see page 37.

Value Cables & Connections

Description	2.5m	5m	10m	20m	30m	Figure
Standard cable	VBV-**L4025**	VBV-**L405**	VBV-**L410**	VBV-**L420**	VBV-**L430**	1

Standard cables used to connect camera to monitor & can be used as an extension cable.

Part No.	Description	Figure
VSC-**07-24S**	Suzi Coil for joining VSP-47A to VSP-47B	2
VSP-**47A**	Cab side connector	3
VSP-**47B**	Trailer side connector	4
VCS-**020**	Optional camera diverter for automatic rearmost camera selection when trailer connected	5

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5

Base Model Kit

The Base Model Kit is Brigade's entry level reversing camera system and comes with everything required for a single camera system.

The kit includes monitor, camera and 20m of cable ensuring the Base Model Kit is suitable for installation on most vehicle types.

Featuring a 5" colour monitor with adjustable mount and a wide viewing angle, low light camera.

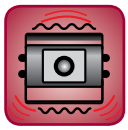
The Base Model Kit features a 1 year warranty and is ideal when a basic single camera/monitor system is required.

Dual voltage 12V to 24V operation

Anti-glare screen

Standard with adjustable monitor mount

Wide angle view



10G vibration resistant rugged construction IP67

Ultra low light performance

NEW in RAS2009

Camera Specifications

Image Sensor :	*1/4" Sharp® CCD*
Min. Illumination :	*0.1 lx*
Microphone :	*No*
Heating :	*Nil*
Pixels :	*300,000*
Field of View :	*96°Hor. 72°Vert.*
Body :	*Aluminium*
Operating Temperature :	*-10°C to +70°C*
IP Rating :	*IP67*
Vibration :	*10G*
Standards :	*HALT Tested*
EMC :	*'e' Approved*

Monitor Specifications

Current Draw :	*0.65Amps @ 12V*
Voltage :	*12-24V*
Video Signal :	*NTSC & PAL*
Audio :	*Integrated Speaker (AV input only)*
Camera Inputs :	*1*
AV Input/Output :	*1*
Screen Size :	*5"*
Screen Resolution :	*960 x 234*
Operating Temperature :	*-10°C to +60°C*
Vibration :	*5G*
Standards :	*HALT Tested*
EMC :	*'e' Approved*

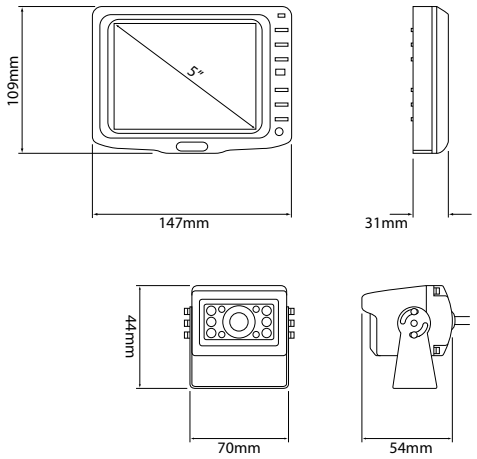
Base Model Kit

Part No.	Voltage	Description
VBV-**650**-000	12-24	5" monitor & camera kit

Kit contains:

- *1x 5" Monitor*
- *1x Camera*
- *1x 20m cable*
- *1x Adjustable monitor mount*

Cable extensions available upon request.



Compatible with Value Series cables - see page 45.

FLIR PathFindIR™

The PathFindIR camera is a high performance, rugged, thermal imaging camera designed to provide vision enhancement in adverse conditions.

Thermal imaging allows heat signatures produced by people and animals to be quickly and easily identified making the PathFindIR extremely effective when searching for hidden or obscured personnel.

Fire and Emergency Services using the PathFindIR can also locate hot spots inside buildings, on the ground and in vegetation after the main blaze has been quelled.

Capable of seeing in complete darkness

Earlier hazard recognition

880m range. More than 4 times further than headlights

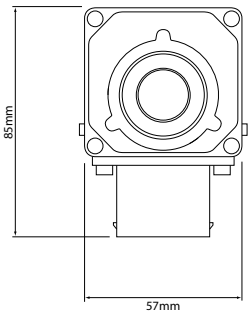
Rugged heavy duty construction

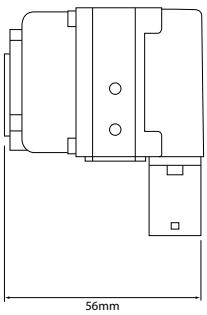
Compact design allows easy concealment in vehicles

Saves lives, property, and profits

Maintenance free system delivering excellent image quality

36° lens for excellent situational awareness





PathFindIR™ Specifications

Voltage :	*6-16V*
Power Consumption :	*2 Watts (6 Watts with heater on)*
Detector Type :	*Uncooled microbolometer*
Spatial Range :	*8 to 14 µm*
Thermal Sensitivity :	*100 mK at +25°C*
Image Frequency :	*8.3 Hz Pal or 7.5 Hz NTSC*
Focus :	*Automatic (25m to infinity)*
Image Processing :	*Digit Detail Enhancement (DDvE)*
Time to Image :	*< 2 seconds*
Operating Temp :	*-40°C to +80°C*
Sand / Dust :	*Mil-Std810*
Shock :	*30 G, IEC 60068-2-27Ea*
Vibration :	*IEC 60068-2-64*
Weight :	*360 grams*
IP Rating :	*IP67*
Certification :	*CE & 'E' Mark*

FLIR PathFindIR™

Part No.	Voltage	Description
334-**0001**-00PS	12	Heavy duty thermal imaging camera. 308-0121-00 cable required
308-**0121**-00	12	6m PathFindIR cable with 2x open power leads and BNC connector
261-**1470**-00	12	Universal mount bracket to suit 334-0001-00PS

Camera power supplied via Brigade monitor or external source.

Catalogues

Lighting

- Heavy Duty LED
- Heavy Duty HID
- HID Driving Lights
- Heavy Duty Halogen
- General Purpose
- Interior Lighting

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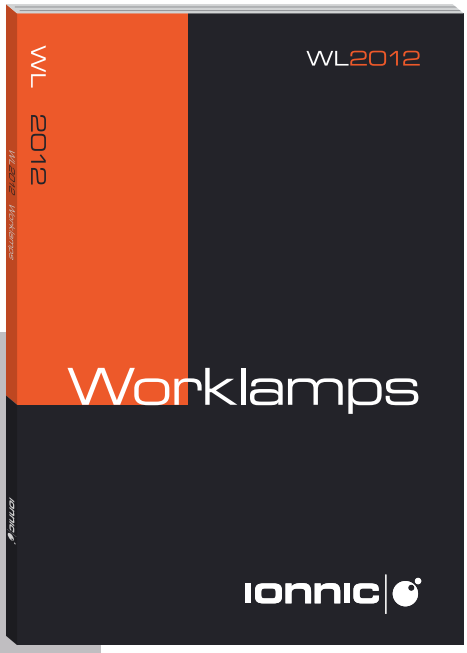

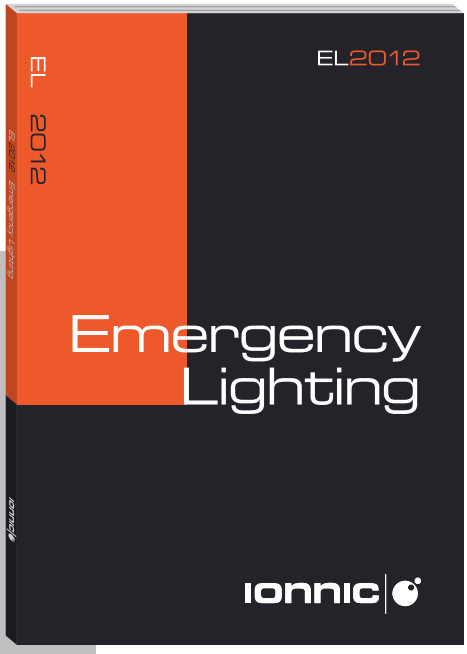

- LED & Halogen Beacons
- Strobes
- Lightbars
- Minebars
- ROPS Bar
- Directional Arrows
- LED Lighting
- Bus Warning Light Kits
- Flasher Units

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Digital Video Recorder

The MDR-304 is an advanced digital video recorder designed specifically for use in mobile environments.

The recorder unit inside MDR-304 can be easily removed allowing trouble-free linkup with a computer or TV.

In addition the MDR-304 is capable of displaying real-time images simultaneously from four cameras along with journey data directly onto your in-cab monitor.

The MDR-304 digital video recorder features a multitude of record and playback settings yet remains simple and user friendly making it perfect for any application.

Removable recorder unit with USB connector

Rapid search of recordings

Embed GPS & blackbox data *Requires optional GPS module or 3rd party blackbox*

On-site, PC or TV playback capabilities

Record on manual activation, movement or alarm

Endless loop recording or stop when hard drive filled

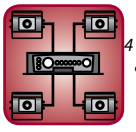
4 levels image quality at up to 25 fps (PAL)

Up to 30 hours of recording time at highest resolution and frame rate

Software included for viewing files on PC

Save snapshot image & data directly to SD Card

Save & load all settings onto SD card for easy unit configuration



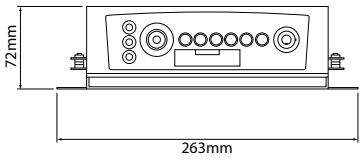
4 camera inputs & up to 4 way split screen

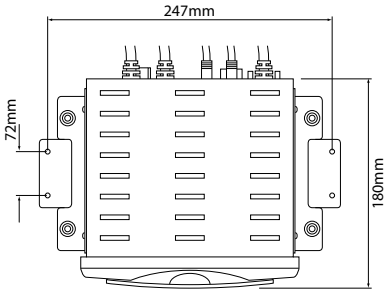
Password lockout disables controls for tamper free operation

Part No. MDR-304-160

MDR-304-160 Specifications

Voltage :	*12V*
Current Draw :	*2A (Max.)*
Standby Current Draw :	*0.25A @ 12V*
Vibration :	*1.25 G rms*
Mechanical Shock :	*8 G*
Operation Temperature :	*0°C to +65°C*
Camera Inputs:	*4*
Auxiliary Audio In :	*2 x RCA*
Auxiliary Video Out :	*1 x RCA*
Auxiliary Audio Out :	*1 x RCA*
Communication Port :	*1 x RS-232*
Auxiliary inputs :	*SD Card, Mini USB*
GPS Supported :	*Yes*
Recording Rate :	*1 frame every 16 seconds up to 25 fps (PAL)*
Recording Capacity :	*Best Quality 3.8Hrs per 20GB*
	Basic Quality 2290Hrs per 20GB
Hard Drive Size :	*160GB (1000MB = 1GB)*
Resolution :	*720 x 576 Pixels (PAL)*
Alarm Recording :	*Pre-Alarm / Post Alarm*
Window Divisions :	*1/2/3/4*
Search :	*Record List / Event List / Time & Date / Thumbnail*
Fast Search :	*1x, 2x, 4x, 8x, 16x, 30x, 100x*
Slow Search :	*1/2x, 1/4x, 1/8x, 1/16x*
Compression :	*MPEG*
Password Protection :	*Yes, operation-menu setup*
Certificate :	*FCC / CE / RoHS / E / e-mark*





Digital Video Recorder

Part No.	Description	Fig
MDR-**304**-160	Mobile digital recording system 12V base kit - 160GB	1
AC-**301**	Camera adapter (Value range to MDR) 1 required per Brigade camera	2
AC-**302**	Camera adapter (Backeye range to MDR) 1 required per Brigade camera	3

Base kit contains:

- *Removable digital video & data recorder - 160GB*
- *Caddy with anti-vibration mount*
- *Mini USB cable*
- *PC Software*
- *User manual*
- *240V to 5V power adaptor*
- *2x Keys for physically locking removable recorder unit*

Fig.1

Fig.2

Fig.3

Digital Video Recorder Accessories

Part No.	Description	Figure
GPS-**6015**	GPS Receiver with 5m cable	1
RC-**300**-060	Remote Controller with 6m Cable	2
P**5024**	Reducer 7A continuous 24V to 12V - Required for 24V installations	3

Fig.1

Fig.2

Fig.3

DVR software - HDD Viewer

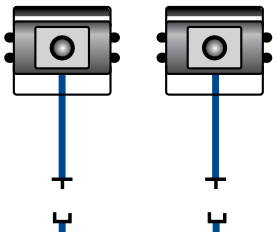
HDD Viewer software is supplied as part of the base kit. This simple to use PC program features standard video playback controls as well as options to save single image jpg's and video files in popular formats.

HDD Viewer can also synchronise with virtual globe programs such as Google™ Earth Plus, allowing you to automatically follow the journey as the video plays.

Quick and simple video reviewing
Browse recorded video straight off the hard drive
Track journeys along side video
Synchronise with virtual globe programs
Split screen up to 16 video channels at once or one at a time
Take jpg snap shots with a click of a button
Easy to use playback controls including frame by frame
STOP

DVR - Connection Diagram

Cameras

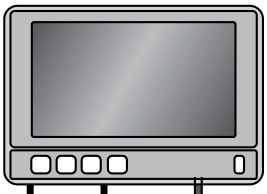


When connecting a Brigade Backeye or Value series CCTV camera system to your DVR make sure the corresponding Y-piece adaptor is used to ensure a simple plug together wiring process. This allows for both the camera and monitor to work as it would in a standard CCTV installation.

One **AC-301** Y-piece adaptor is required per camera when connecting to a Value series CCTV system.

One **AC-302** Y-piece adaptor is required per camera when connecting to a Backeye range CCTV system.

Monitor



AC-301 VBV Y-Piece adaptor
(for Value cameras/monitors)

or

AC-302 BE Y-Piece adaptor
(for Backeye cameras/monitors)

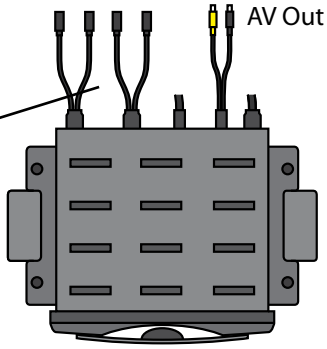
AV cable to in-vehicle monitor *(required for reviewing recorded videos off DVR)*

AV In

AV Out

4x camera input

(All four camera inputs can be utilised)



Index

Part No.	Page
2	
261-1470-00	48
3	
308-0121-00	48
334-0001-00PS	48
5	
585-1	14
8	
809-001	21
809-002	21
809-004	21
809-006	21
810-011	22
9	
905A32	37
A	
AC-012	35
AC-301	51
AC-302	51
B	
B12	18
B122	18
B24	18
B657	18
BA13	13
BA13PT-12V	13
BA13PT-24V	13
BA32NS	11
BA32PT	13
BA390	14
BA42NS	11
BA42NSPT	11
BA530	13
BA560	13
BA570	13
BA660	13
BA680	13
BA680IDC	13
BA880	13
BA890	13
BA890IDC	13
BA891	13
BA891IDC	13
BBS102	7
BBS107	7
BBS107SA	5
BBS77	7
BBS82	7
BBS82HV	7
BBS87	7
BBS87HV	7
BBS92	7
BBS97	7
BBS97SA	5
BCVI	23
BCVI-2	23
BCVI-2-SLAVE	23
BCVI-SLAVE	23
BE-300C	37
BE-301C	37
BE-302C	37
BE-303C	37
BE-304C	37
BE-800C	37
BE-800C-32	37
BE-800C-65	37
BE-810C	37
BE-840C	37
BE-840R	37
BE-856EM	35
BE-870EM	35
BE-870FM	35
BE-890C	37
BE-970-000	41
BE-L105	38
BE-L110	38
BE-L115	38
BE-L120	38
BE-L130	38
BE-X003	38
BE-X005	38
BE-X010	38
BE-X015	38
BE-X020	38
BE-X025	38
BMM-011	35
BMM-011	43
BMM-014	35
BS1030	31
BS1045	31
BS1060	31
BS-415A-KBP	29
BS-415A-KMP	29
BS-415A-KXP	29
BS-420A-KBP	29
BS-420A-KMP	29
BS-420A-KXP	29
BS-430AW-KBP	25
BS-430AW-KMP	25
BS-430AW-KXP	25
BS-435AW-KBP	27
BS-435AW-KMP	27
BS-435AW-KXP	27
BS-5XAA	25
BS-5XAA	27
BS-5XAA	29
BS-5XAB	29
C	
CS-020	38
CT470	16
CT57TCA-2	16
CTBBS92	16
CTBBS97	16
D	
D212KIT	17
D224KIT	17
D2H12	17
D2H24	17
D2L12	17
D2L24	17
DF470	15
DT32	15
DT460	15
E	
EA1001/12V	21
EA1001/24V	21
G	
GPS-6015	51
M	
MD-50	38
MD-50AM	38
MD-50SM	38
MDR-304-160	51
P	
P5024	51
PLC-1000	49
R	
RC-300-060	51
S	
S2H12	17
S2L12	17
SA400	9
SA500-12	21
SA600	9
SA600IDC	9
SA800	9
SA800IDC	9
SA801	9
SC-07	38
SH3015	22
SP-07A	38
SP-07B	38
SPV2110	31
SPV2115	31
SPV2125	31
SPV2150	31
SS700-24	21
SW15	19
SW22	19
SW27	19
SW33	19
SY100	17
SY101	17
T	
TC100H	22
TC60/90	22
TC60H	22
V	
VBV-650-000	47
VBV-700C	45
VBV-750DM	43
VBV-770DM	43
VBV-790C	45
VBV-845C	45
VBV-L4025	45
VBV-L405	45
VBV-L410	45
VBV-L420	45
VBV-L430	45
VCS-020	45
VSC-07-24S	45
VSP-47A	45
VSP-47B	45

Notes

General Information

Reference Manual - Reversing & Audible Safety Rev.01 - 07/2009

This reference manual supersedes all previous editions.

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